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Environmental Assessment

Whychus Portal Project

Sisters Ranger District,
Deschutes National Forest
Deschutes County, Oregon



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Figure 1- Project Location

SUMMARY

Whychus Creek is no longer a local's secret. Its hidden waterfalls, sculpted rock, and ancient travel ways have been discovered by many people; some are responsible users and some are not. Whychus Creek has been nationally recognized and protected since 1988, when Congress designated it as a Wild and Scenic River. This designation protects selected rivers or segments of rivers with Outstandingly Remarkable Values for the benefit and enjoyment of present and future generations.

The Sisters Ranger District proposes to protect and enhance Whychus Creek's Outstandingly Remarkable Values by restoring impacted areas and managing access and recreational use of the lower 3 miles of 8.8 mile "Scenic" segment of the Whychus Creek Wild and Scenic River. The entire Whychus Creek Wild and Scenic River is 15.4 miles in length and includes the creek's mountain headwaters in a 6.6 miles designated "Wild" segment in the wilderness.



Whychus Creek Wild and Scenic River

The **purpose** of the Whychus Portal Project is to comply with the Deschutes National Forest Land and Resource Management Plan (USFS 1990) as amended by the Whychus Creek Wild and Scenic River Management Plan (USFS 2010) which identified the need for immediate management actions in this area to reduce activities which harm Whychus Creek's Outstandingly Remarkable Values.

Actions proposed include:

- 1) Closure and rehabilitation of "user created" trails and roads,
- 2) Closure or decommissioning of unneeded "system" roads,
- 3) Restoration and reduction of dispersed camping sites which negatively affect river values,
- 4) Construction of defined parking areas,
- 5) Creation of a limited, but well designed system of trails to reduce visitor impacts and improve visitor safety and experience,
- 6) Maintaining existing connections to the Metolius/Windigo trail for equestrians and mountain bikers and access to rock climbing areas in the lower corridor,
- 7) Construction of a safe overlook area with a short fully accessible trail, stewardship information, and a restroom.

Why is the Project Needed?

The Whychus Creek Wild and Scenic River Management Plan (USFS 2010) identified a need for immediate management actions in this area to restore impacted areas and reduce activities which are harming Whychus Creek's Outstandingly Remarkable Values (geology, hydrology, fisheries, scenery, prehistoric resources and Native American traditional use) now and into the future. The Significant values of wildlife, vegetation/ecology, cultural history, and recreation would also be better protected and enhanced.

The plan envisioned a gradient of management controls and facilities in the Whychus Portal project area to manage recreational use close to the City of Sisters while more remote reaches with less use closer to the wilderness provided fewer facilities. The plan allowed development of limited improvements (parking areas, system trails, restrooms) in the lower river to manage use to protect river values and provide interpretive and stewardship information for the growing numbers of visitors.

Limiting and managing access to the river corridor would allow low impact enjoyment of the area while improving resource conditions. Trails are an important management technique for reducing pedestrian impacts because they channel and direct foot traffic over a designated route and can be designed to minimize impacts to the creek and avoid sensitive areas.



The Whychus Portal Project is located near Sisters, in Deschutes County and is within the Sisters Ranger District, Deschutes National Forest, Oregon. The project area is centered in the area of highest use and greatest concern, 4-6 miles south west of Sisters, off Rd 16 near the Oregon Water Resources gauging station which marks the beginning of the lower section of the Wild and Scenic River, areas along Peterson Ridge, and at the camping area at Rd 1514-900.

More and more people have discovered Whychus Creek and increasing use is expected in the coming decades as Sisters and Central Oregon grow. Years of increasing unmanaged use in the area has resulted in many user created roads and trails, devegetated camping sites, vandalism, graffiti, garbage dumping, illegal residents, illegal trail building and tree cutting, and damage to old growth trees, other natural features, and cultural resources.

The area has few system trails but has many trails and roads created by users, often in poor locations. Attempts to block access to sensitive areas are frequently breeched and vandalism is common.

The desired semi-primitive character of the river corridor would be enhanced by reducing access points, reducing motorized access, moving bike use off streamside trails, restoring

user trails, reducing and restoring dispersed camping sites, and changing user groups to emphasize low impact recreation.

Water quality, fish habitat, scenery, and impacts to cultural resources, and wildlife habitat will be improved by limiting motorized access and by closure and revegetation of user trails, dispersed camping sites, and unneeded roads. A managed trail would protect river resources while improving visitor safety and recreational experience.

There is also an important opportunity to build stewardship for the area's future by allowing people to learn about the rivers Outstandingly Remarkable Values and developing community and youth engagement. The Whychus Creek watershed is already a focus of strong partnerships between non-profit, conservation, industry, and community groups. Hiking, biking and climbing groups are active partners in the areas management under volunteer agreements and formal partnerships.

What options have been considered?

The Forest Service started the Wild and Scenic River Planning Process in 2003 and talked to hundreds of people about the best ways to protect Whychus Creek. The Interdisciplinary Team listened and worked to understand the social and ecological complexities of the creek to provide recommendations for management options that are likely to be most successful in meeting the goals of the Management Plan. Responses to the scoping request for the project provided insightful comments that were helpful in developing alternatives to the proposed action.

The environmental assessment describes current and desired conditions, environmental effects, and management and monitoring needs.

Five alternatives were considered:

Alternative 1, called “No Action”, would continue current management actions.

Alternative 2, called the “Proposed Action” would create protect and enhance outstandingly remarkable river values by closing and restoring 3.9 miles of user created trails, 1.1 miles of user created roads, 10.8 miles of unneeded roads, and 12-13 dispersed camping sites (equaling about 2.5 acres in riparian areas), to reinforce the security of Riparian Habitat Conservation Areas and protect wildlife habitat.

A modest trail system (a total of 3.9 miles long consisting of 2.8 miles of river trail and 1.1 miles of a one way accessible loop on top of the canyon) would lead people away from some sensitive cultural resource areas and streamside habitats but provide scenic views and enough length to allow most people to enjoy the area from a system trail. Some user trails, including “Brads Trail” would be redesigned to meet trail standards and relocated where they are too steep or close to the creek. Other user trails including “The Grunt” would be closed. Three parking areas would be defined.

A viewpoint or overlook with a fully accessible loop trail would allow the majority of people to enjoy the creek and views from the cliffs off Road 442 while far above the creek on a dry plateau. The parking area or trails leading to the overlook area would be a place to explain the Wild and Scenic River and its Outstandingly Remarkable Values, community stewardship philosophy, and the low impact behaviors required to protect the river corridor. A restroom would be installed at the parking area and could also serve the Peterson Ridge Mountain Bike Trail which ends in this area.

Rd 900 Dispersed campsites- Much of the site will be rehabilitated to reduce erosion and overland water flow. Limited walk-in dispersed camping would be allowed (approximately 2 walk-in dispersed campsites).

Mountain bikes would connect from the Peterson Ridge Trail to the Metolius/Windigo trail with a section of road to trail conversion that allows a single track experience to be engineered using an existing road corridor. **Equestrians** would continue to have managed access to the existing horse trails. **Rock climbers** would retain managed access to climbing areas.

Alternative 3, called “*Less development, maximize primitive character*” was created in response to public comments that a more limited trail system was appropriate to maintain the creeks primitive character and protect and enhance outstandingly remarkable river values. Restoration and road closures are similar to Alternative 2.

A more limited trail system (a total of 2 miles long consisting of 1.1 miles of river trail and 0.9 miles of an two way accessible spur on top of the canyon) would lead people away from some sensitive cultural resource areas and streamside habitats. Trails would culminate in vista points without loops or connections. User trails including those called “Brads Trail” and “The Grunt” would be closed and restored and people would be encouraged not to enter these areas through signing and education. Three slightly smaller parking areas would be defined.

A viewpoint or overlook with a fully accessible one way spur trail would allow the majority of people to enjoy the creek and views from the cliffs off Road 442 while far above the creek on a dry plateau. No restroom would be provided and there would be minimal signs focused on the low impact behaviors required to protect the Wild and Scenic River and its Outstandingly Remarkable Values. No dispersed camping would be allowed off Rd 900.

Mountain bikes connect with the Metolius/Windigo trail on an existing road corridor. Rock climbers would retain access to climbing areas and equestrian connections would also be maintained.

Two other alternatives proposed by the public were considered but not analyzed in detail.

Alterative 4, called “*Leave it Alone- Restoration only*” considers implementing restoration actions with no recreational access controls except road closures and primitive parking areas.

Alterative 5 called “*More Development, Improved Access and Recreation Experience*” considers more recreational development including more single track bike trail, larger parking areas, and a trail bridge.

Both of these alternatives are inconsistent with protecting river values which is the purpose and need of the project and the rationale for this conclusion is included.

The purpose of this Environmental Assessment is to provide a basis for comparing alternatives and selecting management actions that protect and enhance the resource

values of Whychus Creek. This document describes desired future conditions, existing conditions, environmental consequences, and management and monitoring needs.

The Proposed Action is Alternative 2.

INTRODUCTION

Document Structure

The Forest Service has prepared this Environmental Assessment in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. The document is organized into four parts:



Whychus Creek by Phil Bates

- *Introduction:* The section includes information on the history of the project proposal, the purpose and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public about the proposal and how the public responded.
- *Comparison of Alternatives, including the Proposed Action:* This section provides a more detailed description of the agency's proposed action as well as alternative methods for achieving the stated purpose. These alternatives were developed based on significant issues raised by the public and other agencies. This discussion also includes possible mitigation measures. Finally, this section provides a summary table of the environmental consequences associated with each alternative.
- *Environmental Consequences:* This section describes the environmental effects of implementing the proposed action and other alternatives. This analysis is organized by resource area. Within each section, the existing condition is described first, followed by the effects of the No Action Alternative that provides a baseline for evaluation and comparison of the other alternatives that follow.
- *Agencies and Persons Consulted:* This section provides a list of preparers and agencies consulted during the development of the environmental assessment.
- *Appendices:* The appendices provide more detailed information to support the analyses presented in the environmental assessment.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Sisters Ranger District Office in Sisters, Oregon.

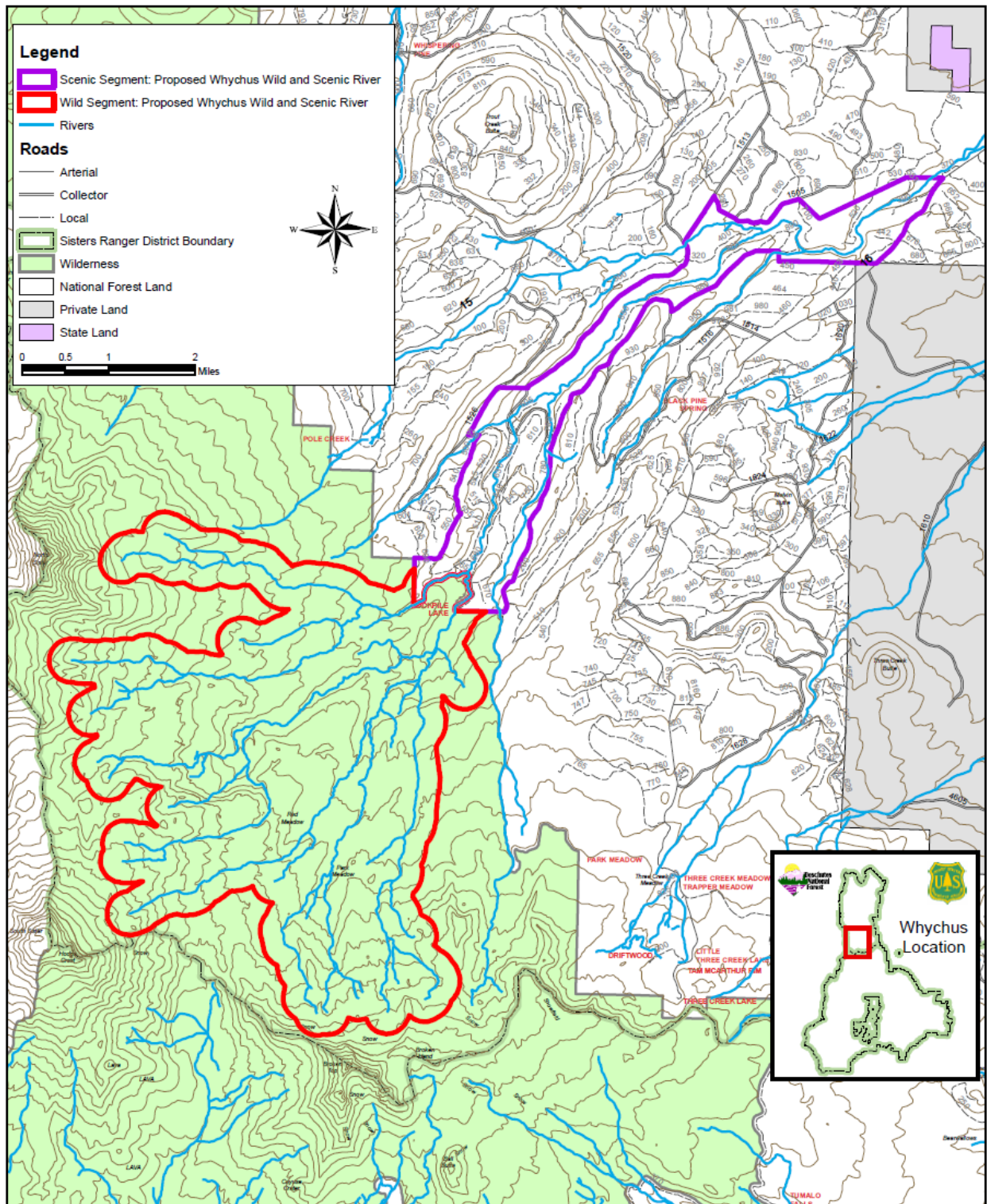


Figure 2- Whychus Creek Wild and Scenic River Final Boundary- 2010

Background

In 1968, Congress passed the Wild and Scenic Rivers Act (P.L. 90-542) and established a nationwide system of outstanding free-flowing rivers. For a river segment to be considered eligible for Wild and Scenic River status it must be “free-flowing” and possess “outstandingly remarkable values” within its immediate environment. These rivers are protected for the benefit and enjoyment of present and future generations.

Whychus Creek (formerly Squaw Creek) is located in Central Oregon on the eastern slopes of the Cascade Mountains. It is a perennial stream that is a tributary of the Deschutes River. It is approximately 41 miles long from its headwaters in the Three Sisters Wilderness to its confluence with the Deschutes River. A portion of Whychus Creek was designated by Congress as a Wild and Scenic River as part of the Omnibus Oregon Wild and Scenic Rivers Act of 1988 (Public Law 100-557 - Oct.28, 1988) – an amendment to Section 3(a) of the Wild and Scenic Rivers Act (P.L. 90 - 542); USC 1274(a).

The designated Wild and Scenic River area includes 15.4 miles of Whychus Creek, beginning at its source on the glaciers of the Three Sisters mountains and ending at the hydrological gauging station that is approximately 4 miles southwest of the City of Sisters in Central Oregon.

The 6.6 mile segment of the creek from its source on the Three Sisters mountains to the Three Sisters Wilderness boundary is classified as “Wild”. The 8.8 mile segment from the Three Sisters Wilderness boundary to the USGS hydrological gauging station is classified as “Scenic.”

Wild and Scenic River Planning

The “outstandingly remarkable values” of Whychus Creek were identified through a Resource Assessment which was completed in 2007. The assessment took into consideration all features which are directly river-related and provided a comprehensive approach to investigating the relationship of river features.

The term “outstandingly remarkable values” has never been precisely defined. The assessment of which values are outstandingly remarkable for Whychus Creek was based on the professional judgment of the interdisciplinary team and documented objective, scientific analysis based on reviews of available literature, consultation with experts, and field work. The region of comparison for Whychus Creek was generally the Central Oregon area.

To be considered “river-related”, values should:

1. Be located in the river or its immediate environment (generally within ¼ mile on either side),
2. Contribute substantially to the functioning of the river ecosystem, and/or
3. Owe their existence to the presence of the river.

River-related values must be rated for their level of significance. Levels include:

- *Outstandingly Remarkable* – A unique, rare, or exemplary feature that is significant at a comparative regional or national scale.
- *Significant (but not outstandingly remarkable)* - Values which still contribute substantially to the rivers character. These values may still need varying levels of protection and consideration in the development of a Wild and Scenic River Plan.
- *Insufficient information* - If the level of existing data is insufficient to make a determination of significance, then it must be identified. The values need to be protected as “outstandingly remarkable” until more information is gathered.

The following Outstandingly Remarkable Values and Significant Values were identified for Whychus Creek Wild and Scenic River:

Outstandingly Remarkable Values:

****Geology**
****Hydrology**
****Fish**
****Scenic Resources**
****Cultural- Prehistory**
****Cultural- Traditional Use**

Significant Values:

***Wildlife**
***Ecology/Botany**
***Cultural- History**
***Recreation**

The Whychus Creek Wild and Scenic River Management Plan was completed in 2010 and established a final boundary and added new specific Standards and Guidelines for lands within the river boundary to the Deschutes Land and Resource Management Plan (USFS 1990).

MANAGEMENT DIRECTION

All federal land management activities in the Whychus Portal Project area must follow standards and guidelines listed in the 1990 Deschutes National Forest Land and Resource Management Plan (U.S. Forest Service 1990), as amended by INFISH (U.S. Forest Service 1995), and in accordance with Best Management Practices (WT-5; U.S. Forest Service 1998a) and the Clean Water Act (WT-1). All National Forest lands in the Whychus Portal Project area fall under the guidance of INFISH. Additional guidance is provided by the Sisters/Whychus Watershed Analysis (U.S. Forest Service 1998b), the Whychus Watershed Analysis Update (USFS 2009) 2009), and the Interior Columbia Basin Ecosystem Management Project (U.S. Forest Service and BLM 1997). Although the Interior Columbia Basin Ecosystem Management Project has not officially been finalized, the science within the document is recommended and may amend INFISH in the near future.

The Desired Future Condition for the project area is derived from the management goals in these documents, and analysis incorporated by reference and is discussed in more detail below.

Deschutes National Forest Land and Resource Management Plan

The project area encompasses lands managed under the Deschutes National Forest Land and Resource Management Plan (USDA 1990) as amended. This plan was analyzed in the Final Environmental Impact Statement for Deschutes National Forest Land and Resource Management Plan (USDA 1990). The plan establishes goals, objectives, and standards and guidelines for management areas on the Forest, as well as Forest-wide standards and guidelines.

Five Management Areas apply to the project area and the Whychus Portal project is in compliance with the following direction:

1) Whychus Wild and Scenic River (MA 17) – 1,200 acres, 33 % of the project area.

The goal for this management area is to protect and enhance those outstandingly remarkable values that qualified segments of Whychus Creek for inclusion in the National Wild and Scenic Rivers System. The Whychus Wild and Scenic River Management Plan (2010) amended the Deschutes National Forest Land and Resource Management Plan, added additional standards and guidelines, described consistent and inconsistent uses, and designated a final boundary. The project area contains part of the Scenic Segment of the Wild and Scenic River. The following background and direction applies.

Scenic River Segment Overview

The project area is within the “Scenic” river segment which extends from the Wilderness boundary downstream to the hydrological Gauging Station 4 miles south of the City of Sisters. Management of the scenic segment of the river corridor is to focus on maintaining and enhancing the near-natural environment. It emphasizes the natural appearance of vegetation, protection of riparian plant communities, and consideration of the river’s outstandingly remarkable values in managing uses and activities. The riverbanks should be largely undeveloped and primitive, but would be accessible in places by roads or trails. Inaccessible areas which currently have little use and which provide high quality wildlife refugia would be retained.

The area should have a natural-appearing setting with limited improvements. There would be a gradient of management controls so areas closer to the City of Sisters would provide more facilities to manage use and higher reaches closer to the wilderness would provide fewer facilities. A few recreational facilities close to the City of Sisters are allowed to be developed to manage use to protect river values and provide interpretive and stewardship information. Recreational facilities such as trails or dispersed camping areas are to be designed or managed to protect riparian areas, relocated, or removed. Access points such as trailheads, parking areas, information kiosks, or viewpoints should be strategically located in the corridor or adjacent to the corridor to manage recreation use.

Standards and guidelines address protection of geological features, instream wood, wildlife refugia and habitats, and cultural resources from recreational impacts. Additional standards guide vegetation management to protect deer habitat. Standards define appropriate trails and locations. Opportunities are to be provided for semi-primitive recreation experiences associated with enjoying the water, forests and mountain views while hiking, watching wildlife, camping, hunting, and fishing. The definition of “semi-primitive” is discussed under **Carrying Capacity**

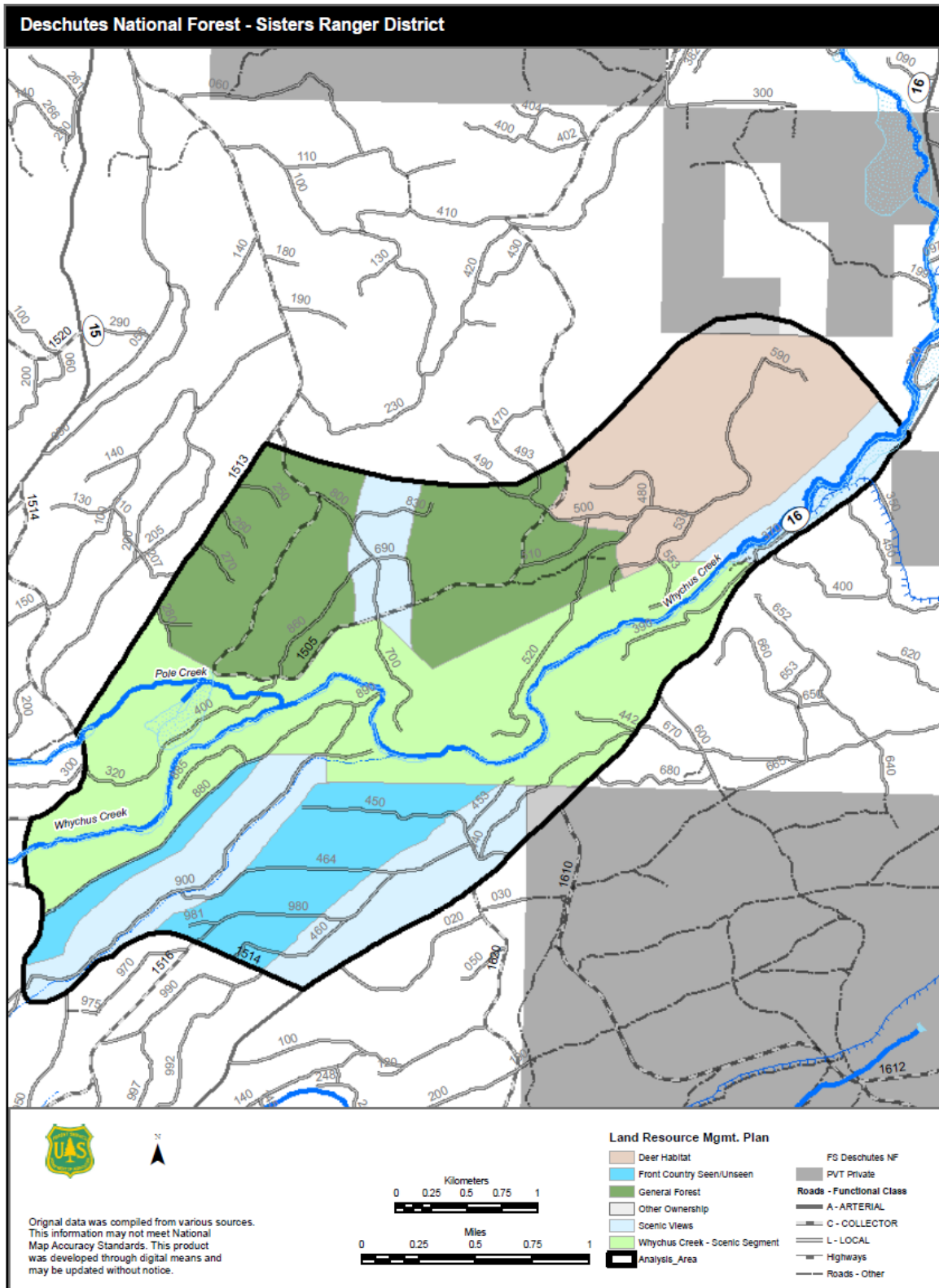


Figure 3- Deschutes Forest Plan Management Allocations

below. Motorized use is allowed as specified by the Deschutes and Ochoco Travel Management Plan (pending).

Interpretation of the river values of Whychus Creek would be available in various forms to the public from low-key off-site interpretive materials to interpretive displays at appropriate locations.

Development of fixed improvements are permitted on a case by case basis if they respond to a demonstrated need for public safety, fulfill a goal of this plan, fulfill an agency management role or involve research of values unique to Whychus Creek.

Recreation management would be designed for sustainability: 1) considering environmental, social, and economic factors that would influence the sustainability of the outstandingly remarkable and significant resource values, and 2) working with the community, visitors, and partners to provide the mental and physical benefits of outdoor recreation while protecting and enhancing the resource values for future generations.

The Forest Service would continue to work closely with state and local governments, partner organizations, and the public to encourage stewardship and develop community volunteerism.

Carrying Capacity and Use Limits for Whychus Creek Wild and Scenic River

Recreational capacity is established by defining desired future resource conditions and recreational experiences and by providing information and examples of consistent and inconsistent uses. The Recreational Opportunity Spectrum (ROS) characterization for each river segment helps define appropriate levels of development for settings and includes: access, remoteness, naturalness, facilities and site management, social encounters, and visitor management. Standards would define appropriate trail locations and allowable authorized uses to help maintain desired social settings over time. Monitoring would indicate the need for management actions necessary to maintain desired conditions.

The Recreational Opportunity Spectrum characterizes the segment of the river within the project area as **Semi-primitive motorized**. **Semi-primitive motorized recreation experiences** are generally within ½ mile from primitive roads, in a largely undisturbed natural environment with little evidence of human development, minimal facility development primarily for resource protection, where low to moderate numbers of people may be encountered (6-15 groups/day).

Whychus Creek Wild and Scenic River Management Plan Implementation Priorities

The Whychus Creek Wild and Scenic River Management Plan provided criteria to guide management actions and a list of priorities. Criteria to be used to set priorities and how the Whychus Portal project addresses these criteria are described below:

1) Public safety

The project addresses public safety by managing public access in an area which has growing use, a high degree of vandalism, and no guidance on where it is appropriate for people to go or park. The overlook area is particularly dangerous because of high cliffs. It is a favorite area for Sisters youth who have brought furniture (park benches, car seats) into the area for years which are removed by the Forest Service and volunteers. The overlook area is a hot spot of vandalism including dumping, shooting, and the site of several human caused wildfires.

2) Protection of the Outstandingly Remarkable Values to maintain conditions consistent with those at the time of designation. Ranked in order of emphasis based on potential risk to the resource, these include: water quality, cultural resources, fisheries, scenery, and geology.

The project addresses protection of priority values by managing public access because it is causing impacts to river values as user created trails and roads proliferate, reducing vegetation, increasing soil erosion, and creating easy access for vandalism. The gauging station area is the nexus of use and vandalism and has been subject to frequent roads breeches to access a prehistoric and cultural resource site, Whychus House Cave, for camping, graffiti, tree shooting, and party activities.

The Rd 900 area has also been a particular concern because of vandalism by shooting of old growth trees and constant breeches of site protection rock enclosures which were installed to limit motorized access to the creek and reduce impacts to prehistoric sites. Dispersed campsites near the gauging station and Rd 900 require constant monitoring and cleanup by Field Rangers, law enforcement personnel, and volunteers because of party activities, tree shooting, illegal woodcutting, and residents who often abandon their camps and garbage.

3) Enhancement of the Outstandingly Remarkable Values to exceed conditions at the time of designation

The project addresses enhancement of priority values with restoration and revegetation of impacted areas and with education emphasizing the Outstandingly Remarkable Values, stewardship, and low impact behaviors.

4) Activities that implement the decisions of this plan which receive outside or cooperative funding, have partners, or advance public stewardship would likely be given a higher priority.

The project addresses these criteria because it is in an area where many partner groups are active and funding initiatives are available. Interest in stewardship by partners and volunteers has greatly increased in the past decade and is essential to successful long-term management of the area. Volunteer River Stewards have been monitoring the gauging station and Whychus Creek House cave area for several years. Partners such as Wolfree, the Deschutes Land Trust, and the Upper Deschutes Watershed Council have played an active role in education and restoration efforts below and adjacent to the project area.

In 2008, the Whychus Creek and Metolius River areas were chosen by the National Forest Foundation for a major capitol conservation campaign to fund restoration, manage use, and promote volunteerism (The Tale of Two Rivers Campaign). Over 100 people attended the National Forest Foundations “Whychus Friends of the Forest Day” in September 2009 to volunteer in clean-up and restoration projects on Whychus Creek. Over thirty people attended the 2009 “Whychus Paint-Out”, an outdoor painting competition to produce art used by the Forest Service and partners in restoration event posters and documents. Stewardship events held in 2010 (Weed Pull, Earth Day, National Public Lands Day, the Paint-Out) by the campaigns volunteer bank brought out 193 volunteers for stewardship and education events on both rivers.

Partners, volunteers, and cooperative funding are available to implement many aspects of this project.

Immediate Priority Actions for Whychus Creek Wild and Scenic River in the Project Area

The proposed actions of the Whychus Portal Project are listed in the in the Whychus Creek Wild and Scenic River Management Plan, Schedule for Management Actions, as required Immediate Actions:

- Close user trails and user roads and control use in the lower Scenic river terminus (near the Gauging Station and Peterson Ridge). Create a well designed and maintained system trail in the area, define parking.
- Identify unneeded roads and decommission or close.

Standards and Guidelines from the Whychus Wild and Scenic River Management Plan

There are numerous Standards and Guidelines which guide and regulate the actions proposed in this project to insure that the Outstandingly Remarkable Values are protected and enhanced and that Significant values are also protected and considered as needed. A detailed list of these Standards and Guidelines and how they are being addressed by this project is found in Appendix 1.

2) General Forest (MA-8) –756 acres, 21 % of the project area.

The goal for this management area is to emphasize timber production, visual quality, wildlife habitat, and recreational opportunities for public use and enjoyment. Standards related to recreation management can restrict activities where resource damage is occurring. No actions are proposed in this portion of the project area except road closures.

3) Scenic Views (MA-9) – 703 acres, 19 % of the project area.

The goal for this management area is to provide Forest visitors with high quality scenery that represents the natural character of Central Oregon. Standards related to recreation management require attention to screening or blending the appearance of recreation facilities with elements in the natural landscape. Actions being proposed in this portion of the project area include road closures, designating a mountain bike trail connection on or close to an existing road, and creation of two parking areas.

4) Deer Habitat (MA-7)–574 acres, 16% of the project area.

The goal for this management area is to manage vegetation to provide optimum habitat conditions on deer winter and transition ranges while providing some wood products, visual quality, and recreation opportunities. Standards related to recreation management restrict motorized and off highway vehicle use. No actions are proposed in this portion of the project area except road closures.

5) Front Country Unseen (MA-18) – 383 acres, 10% of the project area.

The goal for this management area is to provide and maintain a natural appearing forested landscape on the slopes northeast of the Three Sisters while providing high and sustainable levels of timber production. Standards related to recreation management can restrict activities where resource damage is occurring. Actions being proposed in this portion of the project area include road closures and designating a mountain bike trail connection on or close to an existing road.

Deschutes National Forest – Forest Wide Standards and Guidelines

Many other Forest-wide standards and guidelines apply to the river area including specific guidelines for recreation, forest health, wildlife, riparian areas, fisheries, minerals, best management practices for water and soils, fire and fuels management, special uses, and geothermal.

Particularly relevant to this project are standards which require preference be given to riparian area dependent resources over other resources and that woody debris and riparian vegetation is maintained to protect or enhance stream channel, bank structure, and structural fish habitat.

Deschutes National Forest Cultural Resource Management Direction

Management direction for cultural resources is found in the Deschutes National Forest Resource Management Plan, in the Forest Service Manual Section 2360, in federal regulations 36CFR64 and 36CFR800, and in various federal laws including the National Historic Preservation Act of 1966 (as amended), the National Environmental Policy Act, and the National Forest Management Act. In general, the existing management direction requires the Forest to consider the effects on cultural resources when considering projects that fall within the Forest's jurisdiction. Further direction indicates that the Forest Service would determine what cultural resources are present, evaluate each resource for eligibility to the National Register of Historic Places (Register) and protect or mitigate effects to resources that are eligible.

The Northwest Forest Plan- Late Successional Reserve - 47 acres, Matrix - 42 acres, Total = 88 acres, 2 % of the project area.

The upper 4.6 miles of the Scenic river section and the entire Wild River section are managed under direction commonly called the “Northwest Forest Plan” or more accurately the “Record of Decision for Management of Habitat for Late-Successional and Old Growth Forest Related Species within the Range of the Northern Spotted Owl”(USFS and BLM 1994).

The Northwest Forest Plan is a series of federal policies and guidelines governing land use on federal lands in the Pacific Northwest region of the United States. The Plan was developed with the intent of protecting habitat for the northern spotted owl, but came to include much broader habitat protection goals. It creates a network of Riparian Reserves and Late Successional Reserves to conserve and protect habitat and amends the the Deschutes National Forest Land and Resource Management Plan (USDA 1990).

The Scenic River section downstream and outside the Wilderness (1,589 acres) is managed under the Northwest Forest Plan as a Late Successional Reserve. These lands are meant to maintain old growth forest ecosystems and serve as habitat for species which need older forests. Riparian Reserves are areas along all permanent and intermittent waterbodies and wetlands where the main purpose is to protect the health of the aquatic ecosystem and its dependent species.

No actions are proposed in this portion of the project area except one road closure and decommissioning.

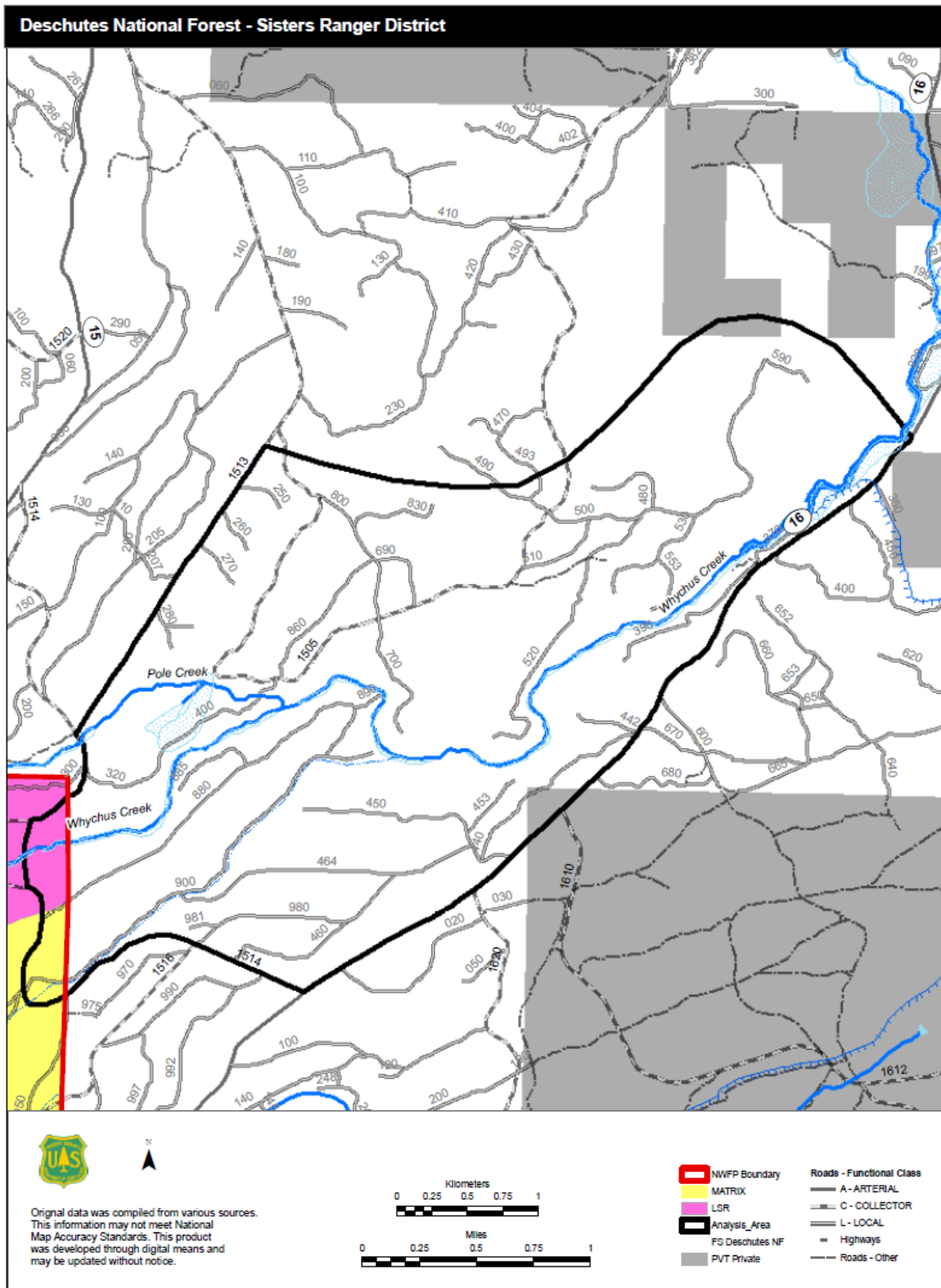


Figure 3- Northwest Forest Plan Management Allocations

Regional Forester Amendment #2-Revised Continuation of Interim Management Direction Establishing Riparian, Ecosystem, and Wildlife Standards for Timber Sales (Eastside Screens)



Old growth Ponderosa Pine along Whychus Creek near Rd 900

The lower 4.2 miles of the “Scenic” river corridor are managed under direction called the “Revised Continuation of Interim Management Direction Establishing Riparian, Ecosystem and Wildlife Standards for Timber Sales, Regional Forester’s Forest Plan Amendment. This direction is commonly called the “Eastside Screens.”

The Regional Forester issued this direction to National Forests on the eastside of the Cascade Mountains in August 1993. It requires the retention of old-growth attributes at the local scale and moving toward the historic range of variability (the range of forest conditions likely to have occurred before European settlement) across the landscape.

The Eastside Screens limit certain types of activities in watersheds where old growth forests are now less common than the historic range of variability and are intended to maintain management options for the future. The screens also provided direction on buffers and other protections for streams and wetlands. The Whychus Watershed Analysis found that old growth forests in the area are limited and highly altered from past logging and fire suppression (USFS 1998, 2009).

A decision notice issued in May 1994 amended all eastside Forest Plans to include this direction. The May 1994 decision notice was revised in 1995 and was subsequently called the “Revised: Interim Management Direction Establishing Riparian, Ecosystem and Wildlife Standards for Timber Sales, Regional Forester’s Forest Plan Amendment #2”, and has continued to be known as the “Eastside Screens”. Since the 1995 revision, there have been several letters of clarification from the Regional Office regarding the Eastside Screens. In 1995 Inland Native Fish Strategy standards replaced direction on riparian area management in the Eastside Screens (see below).

No vegetation management is proposed in this project.

Inland Native Fish Strategy - INFISH (1995)

The lower 4.2 miles of the “Scenic” river corridor, including the project area, is also managed under direction from the Inland Native Fish Strategy or INFISH (USFS 1995).

The Deschutes National Forest Management Plan was amended in 1995 by the Decision Notice and Finding of No Significant Impact for the Inland Native Fish Strategy (INFISH). INFISH provides interim direction to protect habitat and populations of resident native fish. These standards replace the direction on riparian area management in the Eastside Screens.

The interim direction is in the form of riparian management objectives, standards and guidelines, and monitoring requirements. Riparian Management Objectives describe good habitat for inland native fish and anadromous fish and interim guidance would apply where Watershed Analysis has not been completed. The Sisters/Whychus Watershed Analysis and the Whychus Watershed Analysis update apply to the Whychus Portal Project area but do not refine the interim Riparian Management Objectives. INFISH provides standards and guidelines for Riparian Habitat Conservation Areas that prohibit or regulate activities that retard the attainment of Riparian Management Objectives at a watershed scale.

Priority watersheds were identified to help prioritize restoration, monitoring and watershed analysis for areas managed by INFISH. The Whychus Portal Project is within the Upper Whychus Creek subwatershed and Middle Whychus Creek subwatershed neither of which is considered a “priority watershed” under INFISH.

Another essential piece of INFISH is the delineation of Riparian Habitat Conservation Areas (RHCAs). These are portions of the watershed where riparian dependent resources receive primary emphasis and management activities in these areas are subject to specific standards and guidelines. Riparian Habitat Conservation Areas include traditional riparian corridors, wetlands, intermittent headwater streams, and other areas where proper ecological functioning is crucial to help maintain the integrity of the aquatic ecosystems by: 1) influencing the delivery of coarse sediment, organic matter, and woody debris to streams, 2) providing root strength for channel stability, 3) shading the stream, and 4) protecting water quality” (USFS 1995).

The Sisters/Whychus Watershed Analysis (USFS 1998) refined Riparian Reserve widths under the Northwest Forest Plan based on average maximum tree height, 100 year floodplain, extent of riparian vegetation, and unstable and potentially unstable lands. These same adjustments to Riparian Reserves in the Northwest Forest Plan area are applied to Riparian Habitat Conservation Areas for subwatersheds in the Sisters/Whychus analysis area that follow under the guidance of INFISH (See Table 2 below).

INFISH Standards and Guidelines

The action alternatives in the Whychus Portal Project area were designed to comply with the standards and guidelines in INFISH (specifically RF-3c, RM-1, RM-2, RM-3, WR-1, FW-1, and FW-2).

INFISH Standards and Guidelines provide substantial protection to Riparian Habitat Conservation Areas and hydrologically connected uplands.

Hazard trees in Riparian Habitat Conservation Areas may be felled but must be kept on site when needed to meet woody debris objectives.

INFISH standards for recreation management require that recreational facilities including trails and dispersed sites be operated and designed in a manner that does not

retard or prevent attainment of the Riparian Management Objectives

and avoids adverse impacts on inland native fish. Existing recreational facilities must be relocated or closed if they cause adverse effects. Dispersed recreation practices that have adverse effects must be adjusted by such measures as education, use limitations, traffic control devices, increased maintenance, relocation of facilities, specific site closures, or eliminating the practice or occupancy.



Whychus Waterfall” by Paul Alan Bennett

Riparian Habitat Conservation Area Widths for Whychus Creek

The following Riparian Habitat Conservation Area width (INFISH) applies to the length of Whychus Wild and Scenic River within the project area. Widths were verified by the Whychus Watershed Analysis (2009).

Table 1. Riparian Habitat Conservation Area (RHCA) width in the Whychus Wild and Scenic River Plan Project area.

| <i>Category</i> | <i>Stream Class</i> | <i>Description</i> | <i>RHCA width (slope distance (ft) from edge of channel)</i> |
|-----------------|---------------------|--|--|
| 1 | 1 & 2 | Fish-bearing streams | 300 ft |
| 2 | 3 | Permanently flowing non-fish-bearing streams | 150 ft |
| 3 | NA | Ponds, lakes, reservoirs, and wetlands > 1 ac | 150 ft |
| 4 | 4 | Seasonally flowing or intermittent streams, wetlands < 1 ac, unstable or potentially | 70 ft |

| | | | |
|--|--|----------------|--|
| | | unstable areas | |
|--|--|----------------|--|

Clean Water Act (1977, as amended in 1982)

The State of Oregon, as directed by the Clean Water Act and the Environmental Protection Agency, is responsible for the protection of rivers and other bodies of water in the public interest.

Whychus Creek, throughout its length, is listed on the Oregon 2004/2006 303(d) list for water quality exceeding the State standard established in 2004. This is because lower portions of Whychus Creek outside the Wild and Scenic River Corridor have exceeded the 7-day average maximum water temperature standard for salmon and trout rearing and migration which is 18° C (ODEQ 2007). Although stream temperatures in the Wild and Scenic River area are not above the State standard, Whychus Creek is still listed as impaired its entire length because the listing criteria is based on beneficial uses.

Beneficial uses as defined by the State of Oregon for the Whychus Creek watershed are listed in the Hydrology analysis. To show that water quality is being protected, states are required by the Clean Water Act to adopt water quality standards which must be approved by the Environmental Protection Agency. Best Management Practices (BMP) and state-wide management plans are a requirement of the Clean Water Act and are used to meet water quality standards.

Waterbodies within the Whychus Wild and Scenic River Plan Project area that do not meet the State Standards for water quality are discussed in this report within the Water Quality – 303(d) Listed Stream section. The project was designed to meet the requirements of the Clean Water Act.

Pacific Northwest Region Final Environmental Impact Statement for the Invasive Plant Program (USDA, 2005)

This environmental assessment is tiered to a broader scale analysis, the Pacific Northwest Region Final Environmental Impact Statement for the Invasive Plant Program. The associated Record of Decision amended the Deschutes National Forest Plan by adding management direction relative to prevention and treatment of invasive plants (formerly called noxious weeds).

Inventoried Roadless Areas and Roads Analysis

There are no Inventoried Roadless Areas within the project area.

Reducing road densities in the area is recommended by the Deschutes Forest Plan (1990) as amended by the Whychus Creek Wild and Scenic River Management Plan (2010) and in the Whychus Watershed Analysis (USFS 2009). An interdisciplinary Roads Analysis (Walker 2010) was completed and is discussed further under the Recreation analysis. Maps of roads identified for closure are included in the Alternatives.

Analysis Incorporated by Reference

Whychus Watershed Analysis (1998, 2009)

The Whychus Watershed is one of seven Key Watersheds identified on the Deschutes National Forest. Key watersheds are identified as crucial to at-risk fish species and provide high water quality. A Watershed Analysis was completed to develop a landscape level assessment to guide project planning (USFS 1998). The assessment process examined current and historic conditions and identified trends of concern in the watershed, and provided recommendations as a basis for future management. The Whychus Watershed Analysis Update (USFS 2009) includes additional information captured below.

Relevant trends are discussed in more detail under the Existing Condition sections of this document. The following conditions that may support a need for management action were identified for the project area in the watershed:

- Degradation of riparian habitats by lack of natural disturbances (fire, beaver, floods), past logging, damaging recreational use.
- Population increases in Sisters and Central Oregon, and faster than average growth rates.
- Lack of funding for trail maintenance.
- More user roads and trails, including illegally built trails of all types.
- Increasing mountain bike and horse use.
- Increasing Off Highway Vehicle use with more user trails and damage to resources.

Management recommendations for these trends are described and prioritized in the assessment. See Whychus Watershed Analysis (USFS 1998, 2009).

Whychus Late Successional Reserve Assessment (2001)

A small portion of the project area is within the Northwest Forest Plan area and is a part of the Whychus Late Successional Reserve. No activities except road closures are planned in the area, however, managing access and reducing dispersed camping where it is impacting river resources also help improve habitat security and reduce the risk of human caused wildfires in the Late Successional Reserve which is upstream of the project area. Vandalism such as shooting old growth trees and breeches of streamside closures affect old growth trees which are more common along the creek, making them more susceptible to diseases.

Late Successional Forest ecosystems along Whychus Creek support a unique array of wildlife and plant species. Managers are required to prepare an assessment of existing conditions and appropriate activities for Late-Successional Reserves and dependent species. This was completed for Whychus Creek Late-Successional Reserve in 2001. A specific Management



Strategy Area was identified surrounding the Wild and Scenic River, called the Whychus Creek Management Strategy Area.

The assessment identified primary risks or limiting factors preventing attainment of Late Successional goals and objectives in the Whychus Creek Management Strategy Area and described specific management priorities, options, locations, and triggers for action.

The following relevant trends in need of management action were identified for the Whychus Creek Management Strategy Area:

- Risk of loss of forests from catastrophic fire.
- Risk of loss of forests from epidemic levels of mistletoe, and other insects and diseases.
- Limited large tree structure.
- Inadequate habitat for Northern Spotted Owls and other interior forest species.
- Changes in species composition from historic types.
- Limited snags and down wood.
- Detrimental impacts in riparian areas from human use.
- Changes in density and composition of riparian vegetation, including lack of large trees, high densities of small trees and loss of aspen and cottonwood.
- Detrimental impacts from high road densities and use of vehicles off –roads.
- Noxious weeds (now termed Invasive Plants)

Management options for these trends are outlined by area, allowable amounts, timing, and what would trigger the action in the assessment. See the Whychus Late Successional Reserve Assessment for more details (USFS 2001).

Greater Sisters Country Community Wildfire Protection Plan (2009)

The Greater Sisters Country Community Wildfire Protection Plan ([http://www.deschutes.org/go/living-here- Quick Links](http://www.deschutes.org/go/living-here-Quick Links)) provides a framework to protect human life and reduce property loss due to uncharacteristic wildfire in the communities and surrounding areas of Sisters/Camp Sherman, Black Butte Ranch, and Cloverdale Rural Protection Districts.

Portions of the Scenic River corridor are considered within the Wildland Urban Interface because they are within the ½ mile buffer on each side of a major transportation and evacuation route, Rd16 (Three Creeks Road) as identified in the Greater Sisters Country Community Wildfire Protection Plan.

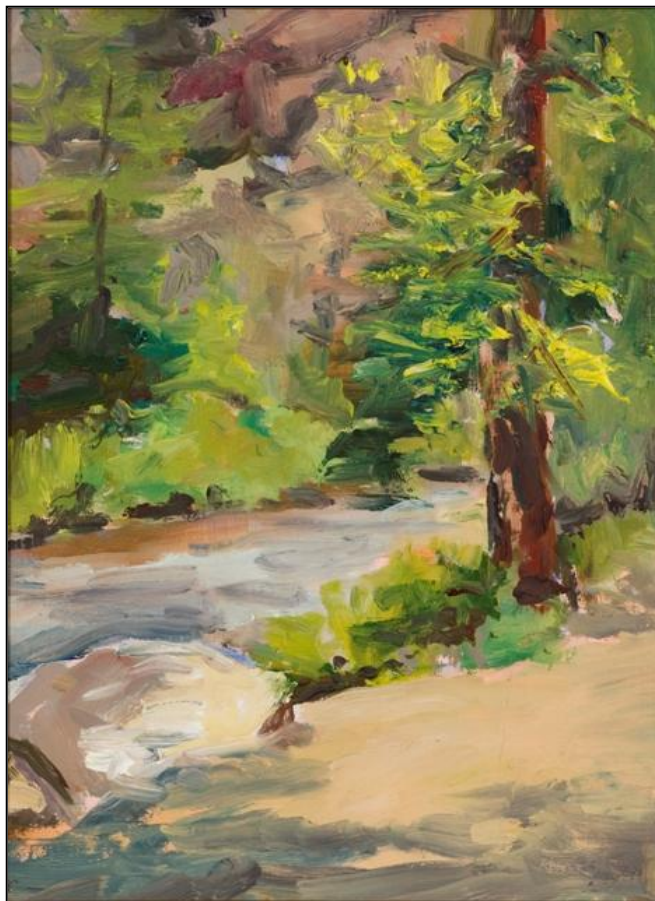
Desired Future Condition, Existing Condition, and Need

The goal of the Whychus Portal Project is to protect and enhance the outstandingly remarkable resource values for which Whychus Creek was designated into the Wild and Scenic Rivers System.

A detailed description of Desired Future Condition, Existing Conditions, and need for action is found in the Environmental Consequences Chapter by resource and includes excerpts from the Whychus Creek Wild and Scenic River Management Plan (2010). Examples of how project actions are consistent with the Plan and how existing conditions are inconsistent with the Plan are also given.

Actions that lead toward the desired conditions over the long term are consistent with this plan. Actions that lead the corridor away from desired conditions or Limits of Acceptable Change over the long term are not consistent with this plan.

An overview of the purpose and need for the project is presented in the next section.



‘Above Whychus Creek’ by Kay Baker



Purpose and Need for Action_____

The Sisters Ranger District proposes to protect and enhance Whychus Creek's Outstandingly Remarkable Values by restoring impacted areas and managing access and recreational use of the lower 3 miles of 8.8 mile "Scenic" segment of the Whychus Creek Wild and Scenic River.

The **purpose** of the Whychus Portal Project is to comply with the Deschutes National Forest Land and Resource Management Plan (USFS 1990) as amended by the Whychus Creek Wild and Scenic River Management Plan (USFS 2010) which identified the need for immediate management actions in this area to reduce activities which harm Whychus Creek's Outstandingly Remarkable Values.

Actions proposed include:

- 1) Closure and rehabilitation of "user created" trails and roads,
- 2) Closure or decommissioning of unneeded "system" roads,
- 3) Restoration and reduction of dispersed camping sites which negatively affect river values,
- 4) Construction of defined parking areas,
- 5) Creation of a limited, but well designed system of trails to reduce visitor impacts and improve visitor safety and experience,
- 6) Maintaining existing connections to the Metolius/Windigo trail for equestrians and mountain bikers and access to rock climbing areas in the lower corridor,
- 7) Construction of a safe overlook area with a short fully accessible trail, stewardship information, and a restroom.



Effects of uncontrolled vehicle use near Whychus Creek showing lack of vegetation and how vehicle tracks impact the root zone of old growth pine trees

The Whychus Creek Wild and Scenic River Management Plan envisioned a gradient of management controls and facilities in the project area to manage use closer to the City of Sisters while higher reaches closer to the wilderness provided fewer facilities. The plan allowed development of limited improvements (parking areas, system trails, restrooms) in the lower river to manage use in order to protect river values and provide interpretive and stewardship information for the increasing numbers of visitors the area is receiving.

Limited and managed access to the river corridor would allow low impact enjoyment of the area while improving resource conditions. There is also an opportunity to build stewardship for the area's future by allowing people to

learn about the rivers Outstandingly Remarkable Values and developing community and youth engagement. The Whychus Creek watershed area is already a center of strong partnerships between non-profit, conservation, industry, and community groups. Hiking, biking and climbing groups are also active partners in the areas management under volunteer agreements and formal partnerships.

These actions are needed to protect and enhance Whychus Creek's Outstandingly Remarkable Values (geology, hydrology, fisheries, scenery, prehistoric resources and Native American traditional use) now and into the future. The Significant values of wildlife, vegetation/ecology, cultural history, and recreation would also be better protected and enhanced.

The area has been a local's secret for years but more and more people have discovered Whychus Creek and increasing use is expected in the coming decades as Sisters and Central Oregon grow. Years of increasing unmanaged use in the area has resulted in many user created roads and trails, devegetated camping sites, vandalism, graffiti, garbage dumping, illegal residents, illegal trail building, tree cutting, and damage to old growth trees, other natural features and cultural resources.

The area has few system trails but has many trails and roads created by users, often in poor locations. In 2005-2007, protective measures were taken including limiting access at 59 streamside sites along Whychus Creek and closure of 1.1 miles of streamside roads and additional user roads. However, resource damage has continued, including breeches of closures and vandalism.



Rd 370 is the site of frequent resider camps which are often left abandoned with cut trees and garbage

The Whychus Portal Project is centered in the area of highest use and greatest concern, 4-6 miles southwest of Sisters, off Rd 16 near the Oregon Water Resources gauging station which marks the beginning of the lower section of the Wild and Scenic River, areas along Peterson Ridge, and at the camping area at Rd 1514-900.



Dispersed campsite in the floodplain with graffiti, trash, and damaged trees

The desired semi-primitive character of the river corridor would be enhanced by reducing access points, reducing motorized access, moving bike use off streamside trails, restoring user trails, reducing and restoring dispersed camping sites, and changing user groups to emphasize low impact recreation.

Water quality, fish habitat, scenery, and impacts to cultural resources, and wildlife habitat would be improved by limiting motorized access and by closure and revegetation of user trails, dispersed camping sites, and unneeded roads. A managed trail would protect river resources while improving visitor safety and recreational experience.

The project area is located near Sisters, in Deschutes County and is within the Sisters Ranger District, Deschutes National Forest, Oregon.

The purpose of this Environmental Assessment is to provide a basis for comparing alternatives and selecting management actions that protect and enhance the resource values of Whychus Creek. This document describes desired future conditions, existing conditions, environmental consequences, and management and monitoring needs

Three alternatives were analyzed: No action (Alternative 1) and two action alternative (Alternative 2 and 3). The Proposed Action is Alternative 2.



Graffiti near Whychus Creek



Steep eroding user trail

Decision Framework

Given the purpose and need, the Sisters District Ranger as the Responsible Official will review the proposed action and the other alternatives in order to make the following decision:

What should be done to protect and enhance Whychus Creek's Outstandingly Remarkable and Significant Values by managing access and recreational use of the lower 3 miles of the Whychus Creek Wild and Scenic River?

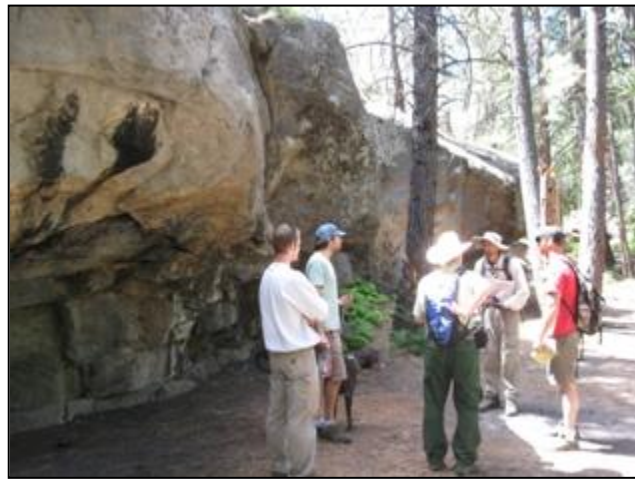
The Responsible Official may:

- ☐ Select the no action alternative; or
- ☐ Select the proposed action alternative; or
- ☐ Select another alternative.
- ☐ Select a modified proposed action alternative
- ☐ Identify mitigation measures to be used with the selected Alternative

Public Involvement

Gathering public comments about Whychus Creek, its values, and future management began in 2003 during the Resource Assessment process and continued during Wild and Scenic River Management Planning.

Issues pertinent to the Wild and Scenic River corridor included: detrimental impacts to riparian areas from dispersed camping and vehicles, maintaining vehicle access, promoting self discovery, minimizing recreational developments, protection of unroaded areas, the need for better trail locations to protect streambanks, reducing wildfire risk, and exploring educational and interpretive possibilities.



Climbers from Central Oregon Rock, Inc discuss monitoring and access to climbing areas with the Forest Service Team

On July 29, 2008 a public field trip to the creek was attended by twenty three people who provided oral comments. Comments centered around the need to change user groups on the creek by making low impact recreational use easier and reducing damaging use. A strong interest in volunteer stewardship was heard and the need for more education. Concerns about protecting large trees, and forest health were also discussed.

The project was presented to 260 people, including interested public and agencies for comment in a scoping letter on August 8, 2010. Twelve people sent e-mails, letters or called. Most of the comments received were supportive of the proposed action and several cited examples of

resource damage they had observed on the creek. One individual expressed that the user trails in the area were too confusing and she didn't feel comfortable using the area. Several people had concerns about the level of development to manage access and these comments are discussed further below under **Issues**.

Numerous comments have also been received informally during volunteer events on the creek which provided information to the Team and the District Ranger.

The Whychus Portal Project was listed in the Deschutes National Forest Schedule of Proposed Actions in October 2010.

Consultation with Native American Tribes

The Whychus Wild and Scenic River corridor and the entire Sisters Ranger District are ceded lands of the Confederated Tribes of Warm Springs and are protected by treaty rights. The Tribes were contacted and provided comments about the Whychus Creek Resource Assessment by letter (Currim, 2003) and in meetings. Discussions have continued. The river values identified by the Tribes as most important were:

- **Hydrology:** Especially in regard to the headwaters that are glacially fed and the wet meadow systems.
- **Fisheries:** Especially with respect to downstream effects on habitat and the reintroduction of steelhead and spring chinook.
- **Wildlife:** Especially with respect to migratory corridors for mule deer in transition to summer range and spotted frogs within lake sites. (*Note: there are no known spotted frog sites on Sisters Ranger District*)
- **Cultural Resources and History:** Especially with respect to known cultural sites.

The Culture and Heritage Committee of the Confederated Tribes of Warm Springs also provided information. They are a group of elders with special knowledge of both history and cultural aspects important to the Tribes. They felt Whychus Creek needed protection. The elders identified that one historic name for the creek meant "The Way to the Mountain" because people traveled along the creek as a route to higher elevations to pick berries, gather herbs, hunt deer, and pick pine nuts. They said Whychus Creek Meadow, a wet meadow site outside the project area, was important to protect. They were concerned about development of recreational facilities and felt that the creek should not be promoted because they feared additional people would mean damage to the creek.

Continuing conversations occurred in 2010 with Tribal Resource Managers about how best to protect Whychus House Cave, a cultural site. They advised us to close trails to the cave, remove graffiti with non toxic methods, and divert people from the area (Sally Bird, 2010. Personal Communication). The degree of recreation management needed to protect resource values has also been discussed (Clay Penhollow, 2010. Personal Communication).

ISSUES

Using the comments from the public, other agencies, partner groups, and the Tribes, the interdisciplinary team developed a list of issues to address. The Forest Service separated the issues into key issues, analysis issues, and issues not carried further in the analysis.

Key Issue

Recreational Development: What is the appropriate level?

Measures:

- ✓ *Effects to wildlife populations and habitat*
- ✓ *Acres of riparian habitat restored (restore dispersed campsites)*
- ✓ *Miles of roads and trails decommissioned and restored*
- ✓ *Miles of road closed*
- ✓ *Effects to “Primitive character”*
- ✓ *Recreation Experience Quality- Significant Value*
- ✓ *Facilities developed: # campsites, miles of trail, # parking areas, and other facilities*
- ✓ *Use = # parties expected per day*

Also see measures under Analysis Issues

Key issues are those that represent a point of debate or concern that cannot be resolved without consideration of the trade-offs involved. These issues spur the design of alternatives to the proposed action that provide a different path to achieve project objectives. Trade-offs can be more clearly understood by developing alternatives and displaying the relative impacts of these alternatives weighed against the proposed action. A key issue related to the appropriate level of recreation development was identified and used to develop one additional alternative which was fully analyzed and consider two other alternatives which were not analyzed in detail.

There are different opinions on how best to protect river values and manage increasing use while maintaining the desired semi-primitive character of the river corridor. While most comments received were supportive of the proposal, some people had concerns which fell into two categories: 1) There is too much development planned, and 2) There is not enough development planned. In addition some felt the level of development proposed was inconsistent with the Whychus Creek Wild and Scenic River Management Plan and that an inadequate range of alternatives was considered.

a. There is too much development proposed and/ or it is inconsistent with the Whychus Creek Wild and Scenic River Plan. It will increase use, cause a loss of primitive character and self discovery, and affect wildlife habitat.

A few people felt the proposed action had a level of development that may create access points and provide for facilities that are unneeded or are excessive to the need for resource protection. There was a concern that the proposed action may lead to an increase in visitor use in the area, lead to increased resource damage and that inaccessible areas, wildlife refugia, and the primitive nature of the river corridor would be lost. One individual felt the proposed action centers on infrastructure development and there is a need to have a less developed approach to items such as parking lots, etc.

There was concern that there could be adverse cumulative effects to the Wild and Scenic River canyon if trails were provided that linked with the Peterson Ridge mountain bike trail and hiking connector trails could lead to over use of the area and the loss of its primitive character. This was partly based on the misunderstanding that bikes would be allowed on streamside trails because of an error in a mapping symbol in the scoping letter. Bikes would not be allowed on streamside trails. Bikes would continue to be allowed on the Metolius/Windigo trail which crosses the project area in one location.

One person felt that the Forest Service had not considered a “restoration only” approach to maintaining the Wild and Scenic River Corridor. This is discussed in a separate section below (c. a restoration only and “leave it alone”).

The consistency of the proposed action with the Whychus Creek Wild and Scenic River Management Plan was questioned because the individuals felt:

- The facilities planned are excessive to the need for resource protection as described in the wild and scenic river management plan.
- The design of the proposed action does not meet the definition of “portals” as defined in the wild and scenic river management plan.
- The proposed action (trail development, etc) may lead to a loss of self discovery which is a stated goal of the wild and scenic river management plan.

Response in Alternative Design:

Consistency – The rationale for the project consistency with the standards and guidelines of the Whychus Creek Wild and Scenic River Management Plan is documented in Appendix 1.

Clarification on the Definition of “Portal”- The Whychus Wild and Scenic River plan did not precisely define the word “Portal” but described the desired future condition of Recreational developments including a portal with the following statement (pg 53):

*“A modest, fully accessible **portal** area close to the City of Sisters could provide a place to view the corridor, enjoy the mountain scenery, learn about the creek’s Outstandingly*

Remarkable Values and stewardship philosophy, and take a walk or connect to a longer hike. “

Concerns about loss of primitive character-Two additional alternatives were designed to address this issue.

Alternative 3 was designed to have less development to maximize primitive character while still providing some managed access. This alternative has less trail (ending in vista points rather than loops or having a trail which links areas), and excludes all dispersed camping, has no restroom, has smaller parking areas, and minimal signing.

A second lower development alternative, Alternative 4 was also developed but not analyzed in detail and is discussed below. See **Alternatives Considered But Not Analyzed in Detail**.

b. There is too little proposed development and access.

Some individuals had concerns that the proposal should maintain or provide more access and recreational developments.

More parking, more trail connections, and a bridge- One individual commented there may be a need for more parking spaces at the overlook and Rd. 370 parking areas. They suggested the proposed action should provide access to the Sisters Trail system from Rd. 370 to Rd. 220 and that may eliminate the need for additional parking places at Rd. 370. They also stated the proposed action should address the need for a bridge at the Metolius/Windigo trail crossing. They believe a bridge is needed to address and mitigate on-going resource damage caused by people trying to cross the creek and to ensure public safety.

Maintain access for rock climbing- A member of the rock climbing community commented that the proposed action should be explicit in maintaining access to bouldering and climbing areas.

Improved bike access and more single track trail in a different location- Another individual believed that the proposed action may not provide sufficient access by mountain bikes, using trails built to standard, to the project area. They felt the proposed action should be expanded to include access to and from the Peterson Ridge mountain bike trail system, including access to the camping area at the terminus at Rd. 900. They later met with the Forest Service and proposed a new single track trail into the canyon. They felt the proposed bike connection on an existing road passes through unattractive areas and is not a high quality experience.

More development above the project area- Another individual disagreed with the idea of less development along higher reaches of the creek and felt the proposed action does not provide sufficient public access to the upper sections of Whychus Creek. They felt trails are needed for public enjoyment and to foster a sense of ownership.

Response in Alternative Design:

More development and access- An Alternative with more development, Alternative 5, with a new single track bike trail into the canyon, a bridge, and more parking was considered. See **Alternatives Considered But Not Analyzed in Detail.**

Improved bike experience – A change was made to the proposed action, Alternative 2, to provide a better trail experience by using “roads to trails” engineering techniques within 50 feet of the centerline of Road 1600464 from the intersection with Rd 1600450 to the evaluation plantation, to provide a better experience within and near the road corridor while minimizing impacts to habitat.

Rock climbing access -Rock climbing access is explicitly discussed in Alternatives 2 and 3. It would be maintained and monitored with the help of user groups.

More development above the project area- This comment is outside the planning area and beyond the scope of this planning effort. It is also inconsistent with the direction of the Whychus Creek Wild and Scenic River Management Plan and was not considered further.

c. There is an inadequate range of alternatives and a need to consider a restoration only approach and “leave it alone”.

One person felt that the Forest Service did not consider an adequate range of alternatives and needed to consider a restoration only approach to maintaining the wild and scenic river corridor. Further conversations were had to define what that approach would entail. The person clarified they felt we should close all the roads and user trails into the area, define a primitive parking with logs, provide no trails, signs, restrooms, or information about the area, keep the area off maps and brochures, and allow all entry into the area to be “self discovery”. They also commented that the proposed action does not meet the intent of “wild” for a wild and scenic river.

Response in Alternative Design:

An Alternative with these features was considered. See **Alternatives Considered But Not Analyzed in Detail.**



Members of Central Oregon Rock, INC help identify access points for rock climbers to be monitored by volunteers from the organization

Analysis Issues

Analysis issues are environmental components that are considered in the Environmental Consequences section as a way to compare the alternatives, although they did not result in differing design elements between the alternatives. These issues are important for providing the Responsible Official with complete information about the effects of the project. They may also be addressed through project design criteria and mitigation measures.

Wildlife – In addition to the key issue related to the appropriate level of recreation development and its effects to the Significant Wildlife Resource, the following were analyzed and compared by alternative in the Wildlife Analysis: Federally Threatened, Endangered, and Candidate Species; Regional Forester's Sensitive Species; Deschutes Forest Plan Management Indicator Species; Landbird Focal Species.

Measures:

- ✓ *Effects to wildlife populations and habitat*
- ✓ *Acres of riparian habitat restored (restore dispersed campsites)*
- ✓ *Miles of roads and trails decommissioned and restored*
- ✓ *Miles of road closed*
- ✓ *Use = # parties expected per day*

Snags & Down Wood Habitat – There are no activities proposed that would remove snags or down wood habitat. Snags and down wood are also addressed in the project design criteria as required by the Ochoco Deschutes Programmatic Fisheries Biological Assessment (USDA Forest Service 2006). If a hazard tree develops adjacent to a parking area it would be addressed through a hazard tree evaluation and options would be considered to protect public safety and retain habitat.

Cultural Resources – Project activities have the potential to impact cultural resources. The project area has been assessed for the presence of cultural resources; any known sites will be projected as advised by the Archeologist.

Measures:

- ✓ *# sites affected*
- ✓ *Effects to Whychus House Cave*
- ✓ *Effects to Treaty Resources*

Hydrology- Water Quality and Watershed Condition– Effects to water quality and the project's relationship to INFISH and Riparian Habitat Conservations Areas and the Aquatic Conservation Strategy Objectives of the Northwest Forest Plan is discussed in the Hydrology Analysis.

Measures:

- ✓ *Streamflow/Sedimentation/Channel Condition*
- ✓ *Temperature/Bacteria/Nutrients*

Fisheries – There will be no effect to Essential Fish Habitat, and no effect to any threatened, endangered, proposed, or candidate fish species. A Biological Evaluation has been prepared and is summarized in the Fisheries Analysis.

Measures:

- ✓ *Effects to Fish populations and habitat*
- ✓ *Acres of riparian habitat restored (restore dispersed campsites)*

Soil Quality – Unmanaged recreational use can potentially increase the amount and distribution of detrimental soil conditions. This issue is considered in the Hydrology and Fisheries Analysis.

Botanical Resources – Potential effects to Proposed, Endangered, Threatened, and Sensitive plant species were considered and one sensitive plant species is found in the project area. A Biological Evaluation has been prepared and is summarized in the Ecology/Botany Analysis.

Measures:

- ✓ *Effects to plant populations and habitat*
- ✓ *Acres of riparian habitat restored (restore dispersed campsites)*
- ✓ *Risk of invasive plant introduction*
- ✓ *Miles of roads and trails restored*
- ✓ *Miles of road closed*

Invasive Species – There are low levels of invasive plant species within the project area. Project activities have the potential to spread invasive plants or create disturbed ground that could allow the introduction of invasive plants. For that reason, the project is designed to comply with Forest Plan standards and guides for preventing the introduction and spread of invasive plants. A noxious weed risk assessment was completed for the project and is discussed in the Ecology/Botany Analysis.

Measures:

- ✓ *Risk of invasive plant introduction*
- ✓ *Acres of riparian habitat restored (restore dispersed campsites)*
- ✓ *Miles of roads and trails restored*
- ✓ *Miles of road closed*

Recreation- Project actions could affect peoples experiences in the area and their ability to access the area. Also see Key issues.

Measures:

- ✓ *Use = # parties expected per day*
- ✓ *Acres of riparian habitat restored (restore dispersed campsites)*
- ✓ *Miles of roads and trails restored*
- ✓ *Miles of road closed*

Other Issues Addressed during Alternative Development

Some issues and concerns raised by the public were used by the interdisciplinary team when considering potential alternatives. For example, some public comments expressed interest in adding additional trails or connections outside the project area. These are discussed under Alternatives Not Considered in Detail.

Resources not carried forward in detail in the Analysis

Geology – There are no expected effects of project activities to the areas Outstandingly Remarkable Value of Geology. Protection of rock faces from rock climbing was analyzed under the Whychus Creek Wild and Scenic River Management Plan (USFS 2010) and is ongoing. The Outstandingly Remarkable Value of Geology is briefly reviewed in the Effects section and is not further analyzed.

Inventoried Roadless Areas and Wilderness – There are no Inventoried Roadless Areas or Wilderness within or near the project area. Neither of these will be discussed further in the analysis.

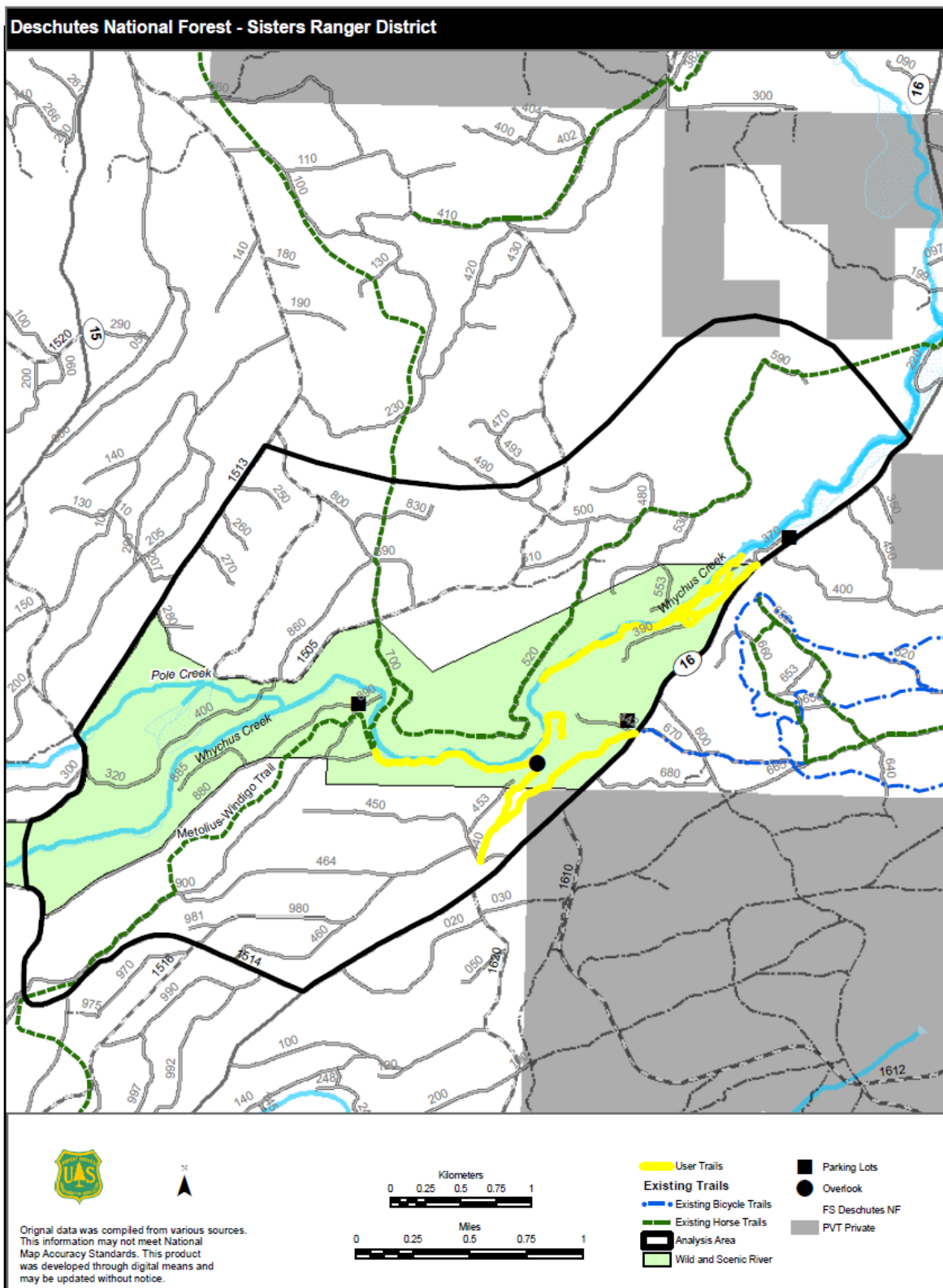


Figure 5- Alternative 1 - No Action User Trails and Existing System Trails

ALTERNATIVES, INCLUDING THE PROPOSED ACTION

This chapter describes and compares the alternatives considered for the Whychus Portal Project. It includes a description and map of each alternative considered. This section also presents the alternatives in comparative form, defining the differences between the alternatives and providing a clear basis for choice among options by the decision maker and the public.

Alternatives ---

Alternative 1- No Action- Existing Condition

Under the No Action alternative, current management plans would continue to guide management of the project area.

1) USER TRAILS

User trails would continue to develop. There are currently approximately 5 miles of user created trails in the project area.

2) ROADS

There would be no change in road status. There are currently approximately 34 miles of system roads and 1.1 miles of user created roads in the project area.

3) MOTORIZED DISPERSED CAMPING

Ten dispersed campsites on the east side of the creek would remain open. The dispersed camping areas at the end of Rd 900 would also remain.

4) PARKING AND ACCESS

There would be no change in parking or road access. Currently there are at least 12 areas where multiple cars park in the project area as well as unlimited opportunities for single car parking. Most of these areas are not visible from major roads and are active areas for vandalism.

5) HIKING TRAIL

No new system trails would be provided.

6) BIKE AND EQUESTRIAN CONNECTIONS

Mountain bikes would continue to use various old roads to connect from the Peterson Ridge Mountain Bike Trail to the Metolius/Windigo. Some bikes would continue to use creekside user created trails.

Equestrians would continue to use the Three Creeks Road- Metolius/Windigo Connector Trail on the north side of the river and the Metolius/Windigo trail.

7) OVERLOOK

There would be no managed access to the cliffs off Road 442. The area is heavily used and hazardous. No sanitation or educational/interpretive facilities would be provided.

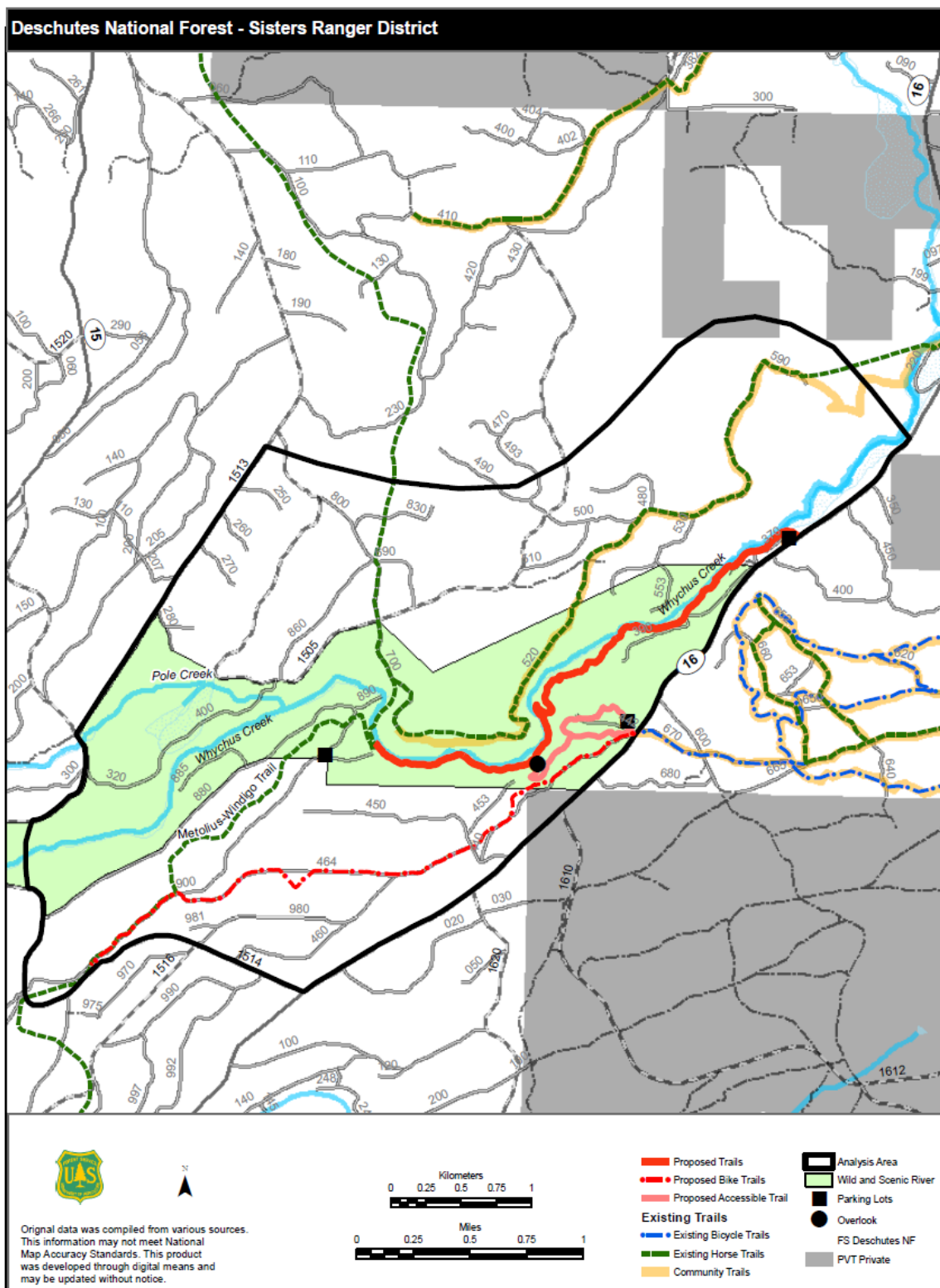


Figure 6- Alternative 2- Proposed Action

Alternative 2- Proposed Action

The goal of Alternative 2 is to protect and enhance outstandingly remarkable river values by managing access with road closures, defined parking areas, and restoration of impacted areas to maximize the effectiveness of Riparian Habitat Conservation Areas and protect wildlife habitat.

A modest trail system would be designed that leads people away from some sensitive cultural resource areas and streamside habitats but provides scenic views and enough length to allow most people to enjoy the area from the system trail. User trails which develop would be monitored and closed as needed.

The user trail called “The Grunt” would be closed and restored and people would be encouraged not to enter this area through signing and education. The user trail called “Brads Trail” would be redesigned and relocated where it is too close to the creek or too steep.

A major focus for trail design is the protection of Whychus House Cave, a significant cultural resource which has been a center of activity, including vandalism, for many years. The trail is designed to obscure that site and encourage people flow past it. A fully accessible loop on top of the canyon is designed to satisfy most people’s desire to see the creek and mountain views while keeping them far from the creek on a dry plateau.

Mountain bikes connect from the Peterson Ridge Trail to the Metolius/Windigo trail with a section of road to trail conversion that allows a single track experience to be engineered using an existing road corridor. Equestrians would continue to have managed access to the existing horse trails. Rock climbers would retain managed access to climbing areas.

The action proposed by the Forest Service to meet the purpose and need would manage access and recreational use with the following actions:

1) RESTORE USER TRAILS

Recontour and revegetate 3.9 miles of user-created trails in the Whychus Wild and Scenic River corridor to restore habitat and reduce erosion. Small spurs which access 4 rock climbing areas in the lower corridor would be maintained and monitored.

Remove and restore the user trail called “The Grunt” and encourage people not to climb up this steep slope through signing and education. The user trail called “Brads Trail” would be redesigned and relocated where it is too close to the creek or too steep. Discourage new user trails.

2) CLOSE ROADS

Close unneeded system roads to improve habitat effectiveness and reduce erosion.

- Close 13 roads or road segments totaling 4.1 miles.
- Decommission and restore 10 roads or road segments totaling 6.2 miles. Native plant species would be planted as needed. Of these totals, 0.5 miles of Rd 900 would be converted to the Metolius/Windigo Trail and 2.1 miles of Rd 440/464 road would be closed or decommissioned and converted to a mountain bike trail.
- Decommission and restore 1.1 miles of user created roads.

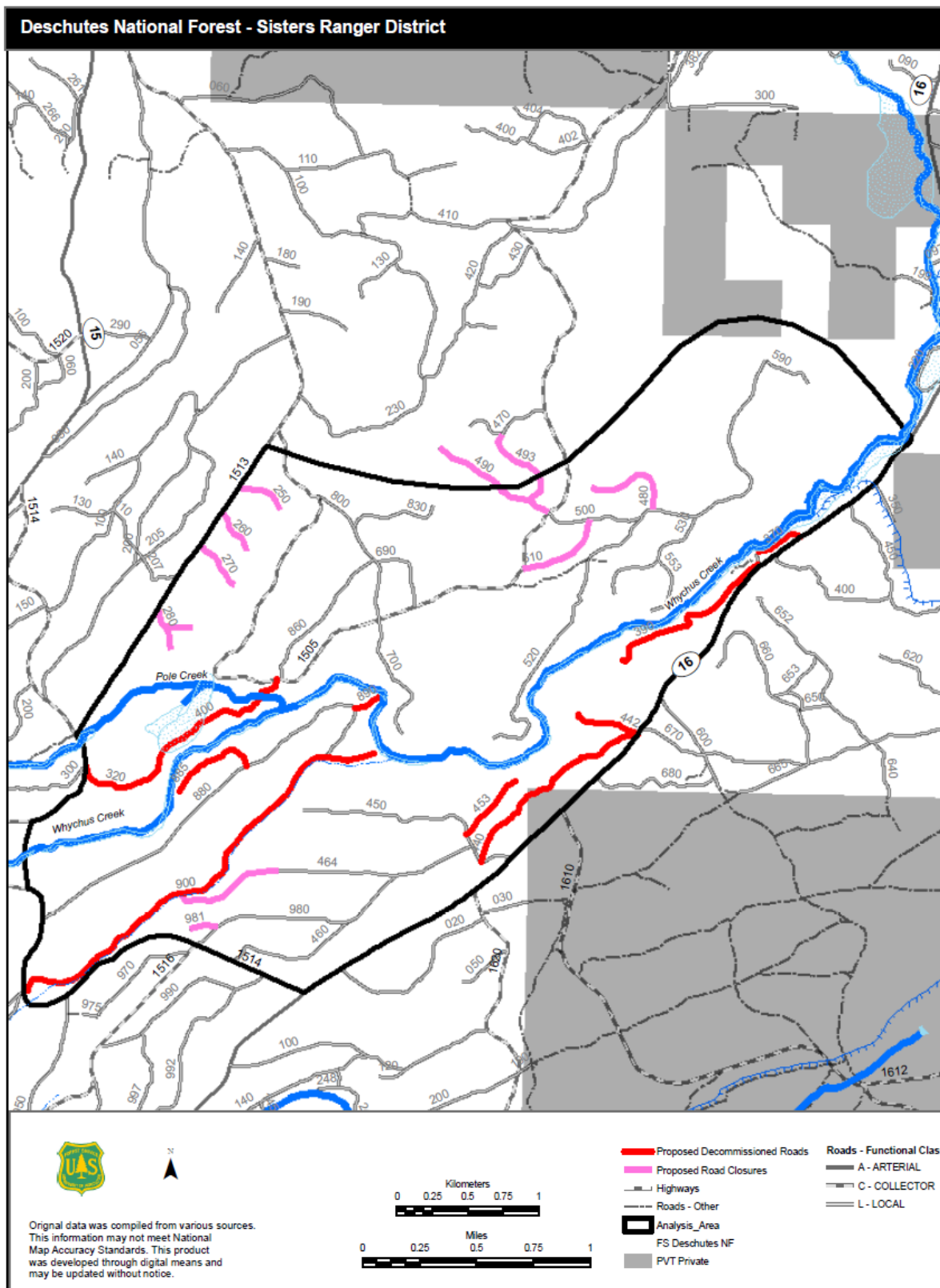


Figure 7- Alt 2- Road Closures and Road Decommissioning

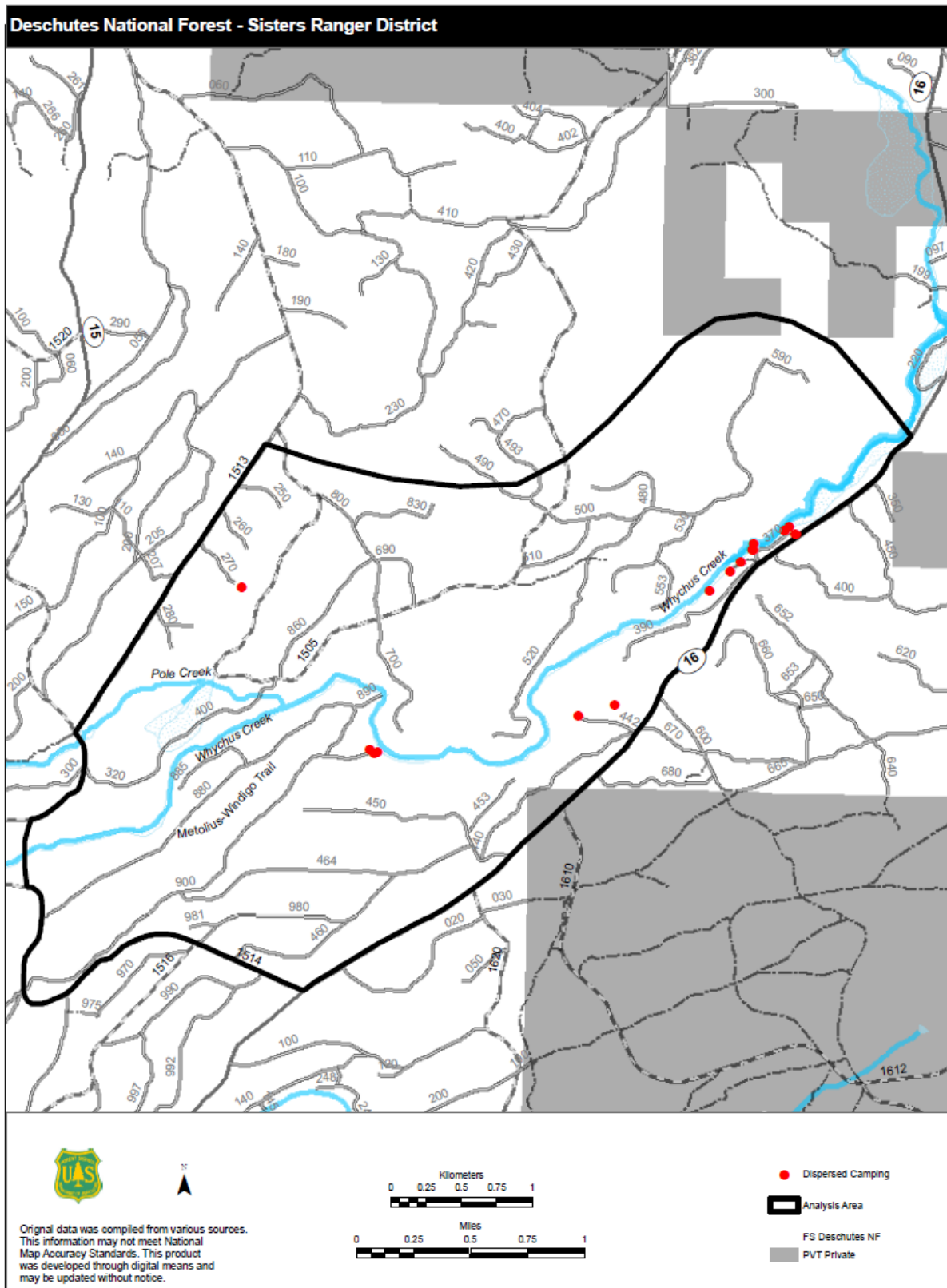


Figure 8- Dispersed Camping Sites to be Restored under both Alternatives

3) REDUCE AND RESTORE DISPERSED CAMPING SITES

- 10 dispersed campsites on the east side of the creek would be closed and restored to reduce impacts to streamside areas and reduce vandalism. Native plant species would be planted as needed.
- No dispersed camping would be allowed, except at Rd 900.
- The walk-in camping area at the end of Rd 900 would be greatly reduced in size (to 1-3 designated sites) and restored to protect a prehistoric site, reduce vandalism, and reduce erosion. Soil Restoration would be done with hand tools to avoid damage to the prehistoric site.

4) CONTROL PARKING AND ACCESS

Reduce and move parking to more visible sites to facilitate monitoring and enforcement. Parking areas would be primitive, confined with boulders with a gravel surface. Parking areas at Rd 370 and 442 would allow Day Use Only. The parking area on Rd 880/900 would allow overnight use to walk-in campsites. Native plant species would be planted as needed.

- Close and restore the Rd 370/390 system and construct a parking area for 5 vehicles near Rd 16, outside the Wild and Scenic River Corridor. Maintain access for irrigators with a gate or leave open for 100 feet.
- Close and restore the Rd 442 system which has many user road spurs and construct a parking area for 10-15 vehicles on Rd 16.
- Construct a parking area for 5 vehicles at the RD 880/900 intersection which leads to the Rd 900 area, and the Metolius/Windigo Trail.

5) HIKING TRAIL

Design a hiking trail at the terminus of the river corridor which is located four miles south of the City of Sisters to manage access and protect river resources.

Hiking trails would total approximately 3.9 miles. The system would provide 2.8 miles of hiking trail near the creek from the Rd 370/gauging station area to Rd 1514900. A 1.1 mile loop trail on top of the canyon to a viewpoint (the overlook) would be fully accessible for individuals with limited mobility.

- 1.1 miles of user-created trails would be improved
- 2.8 miles of new trail would be constructed.

6) MAINTAIN BIKE AND EQUESTRIAN CONNECTIONS

Mountain bikes currently use old roads to connect from the Peterson Ridge Mountain Bike Trail to the Metolius/Windigo trail. A 2.9 mile connection would be maintained on open, closed, or decommissioned roads (Rd 1600440/160460/1600464). Approximately 0.75 miles would be new single track trail construction to skirt around a section corner of private land on the existing road. The remainder trail would be built using “roads to trails” engineering techniques within 50 feet of the centerline of road from the intersection with Rd 1600450 to the evaluation plantation, to improve the experience on the bike trail while using part of the existing road bed.

- 2.2 miles of road would be decommissioned to trail.
- 0.75 miles single track to avoid travel on open road 160464 and private land.

Equestrian trails in the area would be maintained along the Three Creeks Road-Metolius/Windigo Connector Trail on the north side of the river and the Metolius/Windigo trail. A ½ mile segment of the Metolius/Windigo trail which runs on Rd 900 would be decommissioned and converted to a trail for both equestrians and bikers while eliminating vehicle use and water runoff to the creek.

7) PROVIDE AN OVERLOOK

Construct an enclosed area using mostly native materials to allow people to enjoy the views near the cliffs off Road 442. The overlook would provide a safe viewing area to see the Wild and Scenic River corridor and be designed using natural irregular rocks to compliment the landscape. The parking area or trails leading to the overlook area would be a place to explain the Wild and Scenic River and its Outstandingly Remarkable Values, community stewardship philosophy, and the low impact behaviors required to protect the river corridor. A restroom would be installed at the parking area and would also serve the Peterson Ridge Mountain Bike Trail which ends in this area.

Alternative 3- Less Development, Maximize Primitive Character

The goal of Alternative 3 is to protect and enhance outstandingly remarkable river values by managing access with road closures, defined parking areas, and restoration of impacted areas to maximize the effectiveness of Riparian Habitat Conservation Areas and protect wildlife habitat while creating a more limited trail system that leads people away from some sensitive cultural resource areas and streamside habitats but provides some scenic views.

A minimal trail system would be designed to take hikers to vista points and the area would retain more primitive character. User trails which develop from these end points would be monitored and closed as needed. User trails including those called “Brads Trail” and “The Grunt” would be closed and restored and people would be encouraged not to enter these areas through signing and education.

A major focus for trail design is the protection of Whychus House Cave, a significant cultural resource which has been the nexus of activity, including vandalism, for many years. The trail is designed to obscure that site and encourage people flow past it to another scenic vista. A fully accessible trail which ends at a vista point on top of the canyon is designed to satisfy most people’s desire to see the creek and mountain views while keeping them far from the creek on a dry plateau.

Mountain bikes connect with the Metolius/Windigo trail on an existing road corridor. Rock climbers retain access to climbing areas and equestrian connections are maintained.

1) RESTORE USER TRAILS

Recontour and revegetate 4.5 miles of user-created trails in streamside areas to restore habitat and reduce erosion. Native plant species would be planted as needed. Small spurs which access 4 rock climbing areas in the lower corridor would be maintained and monitored. Remove and restore “Brad’s Trail” from Rd 900 to the overlook and “The Grunt” which climbs up the steep face of the ridge. Limit foot access below the overlook by removing the trails below overlook and rehabilitating all access from overlook to the creek. Discourage new user trails.

2) CLOSE ROADS

Close unneeded system roads to improve habitat effectiveness and reduce erosion.

- Close 13 roads or road segments totaling 4.6 miles. This includes a gate at Rd 880 that would close 0.5 miles of road leading down to the creek.
- Decommission and restore 10 roads or road segments totaling 6.2 miles. Of these totals, 0.5 miles of Rd 900 is decommissioned and converted to the Metolius/Windigo Trail and 2.1 miles of Rd 440/464 road is closed or decommissioned and converted to a mountain bike trail.
- Close 1.1 miles of user created roads

3) RESTORE DISPERSED CAMPING SITES

- 12 dispersed campsites on the east side of the creek would be closed to reduce impacts to streamside areas and reduce vandalism. No dispersed camping would be allowed.
- The former camping area at Rd 900 would be restored to protect a prehistoric site, reduce vandalism, and reduce erosion. Soil restoration would be done with hand tools to avoid damage to the prehistoric site. Day use would be allowed.

4) CONTROL PARKING AND ACCESS

Move parking to more visible sites to facilitate monitoring and enforcement. Parking areas would be primitive, confined with boulders and gravel surface. All Parking areas would allow Day Use Only.

- Close and restore the Rd 370/390 system and construct a parking area for 5 vehicles near Rd 16, outside the Wild and Scenic River Corridor. Maintain access for irrigators with a gate or left open for 100 feet.
- Close and restore the Rd 442 system which has many user road spurs and construct a parking area for 10 vehicles on Rd 16.
- Close and gate the last 0.3 mile of Rd 880 and construct a parking area for 5 vehicles with a 100 foot spur to the Metolius/Windigo Trail, which leads to the Rd 900 walk-in camping site.

5) HIKING TRAIL

Design segments of trail without connections or loops to protect river resources. Provide 1 leg of an accessible trail without a loop from the overlook.

Hiking trails would total approximately 2.0 miles. The system would provide approximately 1.1 miles of hiking trail near the creek from the Rd 370/gauging station area to an area approximately 0.25 miles beyond Whychus Creek House Cave. A 0.9 mile spur trail on top of the canyon to a viewpoint (the overlook) and would be fully accessible for individuals with limited mobility.

- 0.5 miles of user-created trails would be improved
- 1.5 miles of new trail would be constructed.

6) MAINTAIN BIKE AND EQUESTRIAN CONNECTIONS

Mountain bikes currently use old roads to connect from the Peterson Ridge Mountain Bike Trail to the Metolius/Windigo Trail. A connection would be maintained on existing roads (1600440 and 1600464).

- 2.5 miles of road would be decommissioned and converted to trail.
- 0.4 miles of single track would be built to avoid open road 160464 and private land.

Equestrian trails in the area would be maintained along the Three Creeks Road-Metolius/Windigo Connector trail on the north side of the river and the Metolius/Windigo trail. A ½ mile segment of the Metolius/ Windigo trail which runs on Rd 900 would be decommissioned and converted to a trail for both equestrians and bikers while eliminating vehicle use and water runoff to the creek.

7) PROVIDE AN OVERLOOK

Construct an enclosed area using mostly native materials to allow people to enjoy the views near the cliffs off Road 442. The overlook would provide a safer viewing area to see the Wild and Scenic River corridor and be designed using natural irregular rocks to compliment the landscape. No restroom would be provided and there would be minimal signs focused on the low impact behaviors required to protect the Wild and Scenic River and its Outstandingly Remarkable Values.

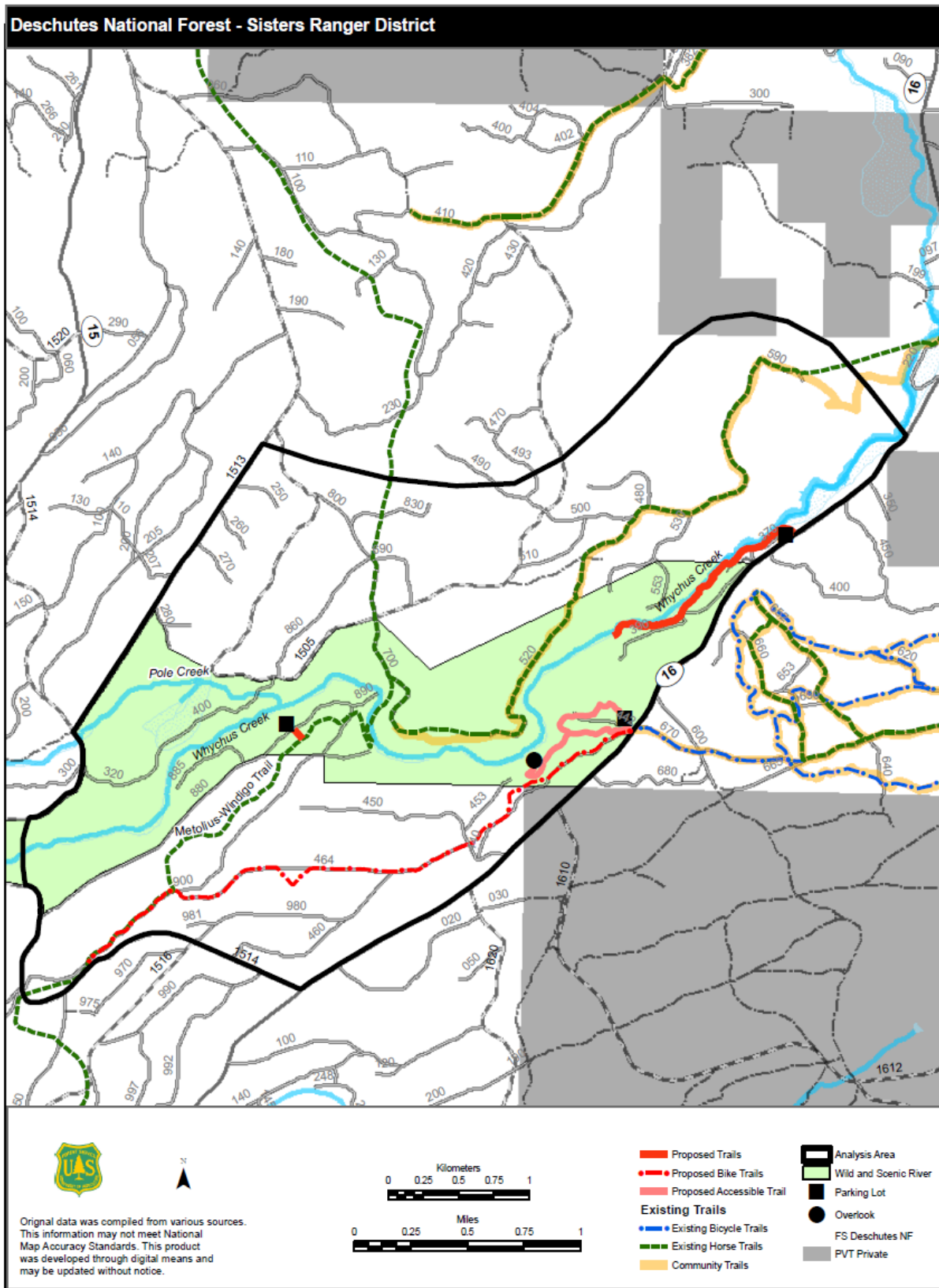


Figure 9 Alternative 3- Less Development, Maximize Primitive Character

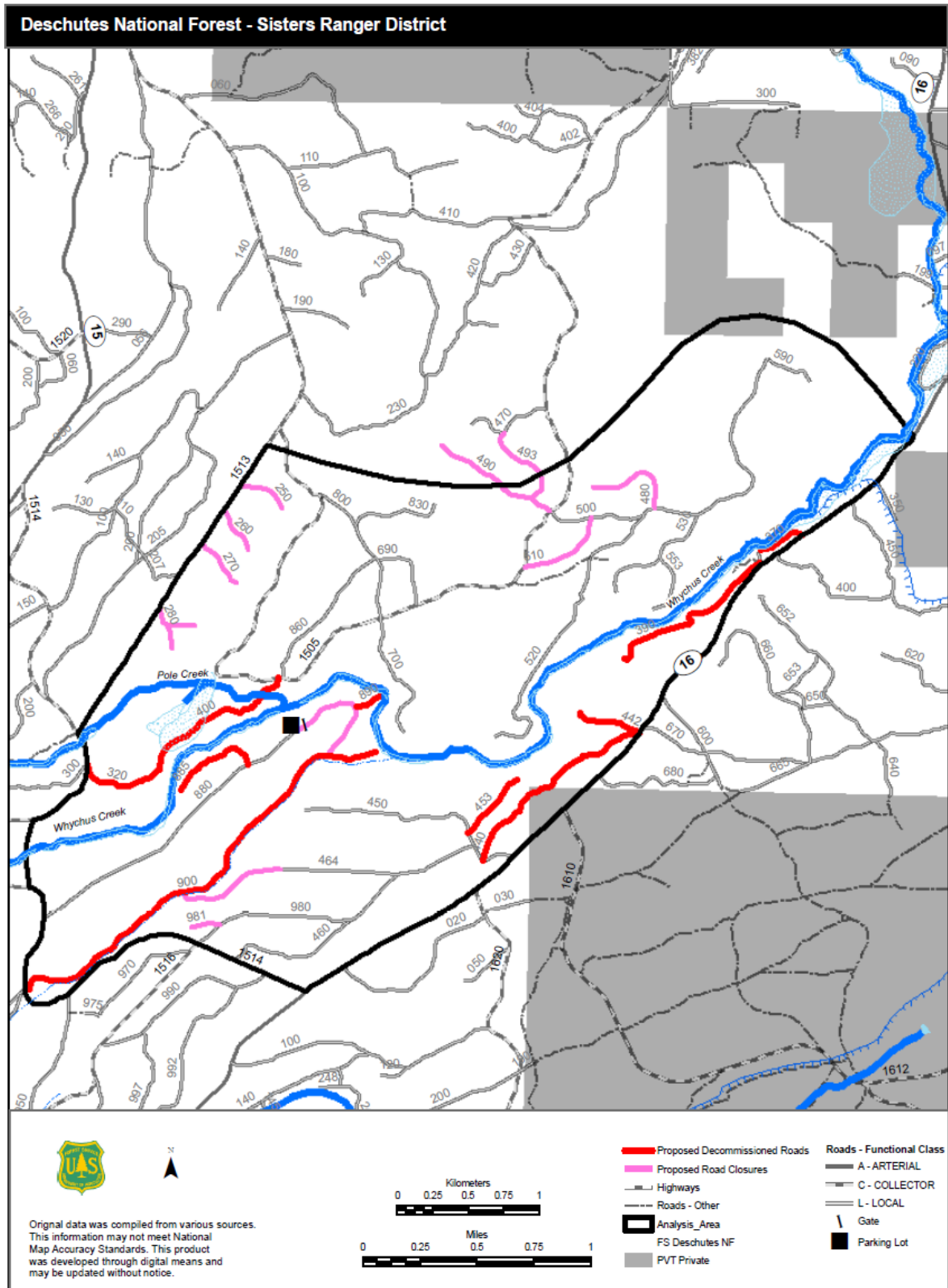


Figure 10- Alt 3- Road Closures and Road Decommissioning

Alternatives Considered but not Analyzed in Detail

Alternative 4 - “Leave it Alone- Restoration Only” Alternative

One person commented that the Forest Service should consider a “restoration only” approach to maintaining the wild and scenic river corridor (also see **Issues**). We had further conversations to define what that approach would entail. The person clarified they felt we should close all the roads and user trails into the area, and provide primitive parking areas, but no restrooms or informational signs, keep the area off maps and brochures, and allow all entry into the area to be by “self discovery”. They gave an example of a success where closing a user trail in the wilderness reduced further use. They also commented that the proposed action does not meet the intent of “wild” for a wild and scenic river.

This alternative was considered but not analyzed in detail because it does not meet Purpose and Need to protect the creek’s outstandingly remarkable values and it is inconsistent with the Whychus Creek Wild and Scenic River Management Plan. The following discussion summarizes the Team’s analysis of the proposal and concerns.

“All entry is by Self discovery” = “Uncontrolled foot access” -The project area begins 4 miles from the City of Sisters and is in an area of steadily growing recreational use. Unmanaged use in the area has led to the creation of a network of user trails and roads near streamside areas. Providing no control of foot access into the area would re-create the situation we are currently trying to address, with each person making their own trail and trampling forest and streamside vegetation creating eroding areas. The effects of this type of access would create a constant need for user created trail obliterations and a low rate of restoration success as people explore finding their own way to the creek. The erosion and devegetation would affect outstandingly remarkable values of the creek such as fish habitat, water quality, streamside cultural sites, and scenery.

Close all roads, keep the area off maps- Other aspects of this approach are impractical. Not all roads into the area can be closed because some are needed for fire management and other administrative access. The area is already on maps as a part of the Deschutes National Forest.

“Wild” versus “Scenic” Designation and Intent – At the time of designation Congress classifies a river segment as one of three different types: “Wild”, “Scenic” or “Recreational”. The project area is within the congressionally designated “Scenic” section, not the “Wild” section of the Whychus Wild and Scenic River. The “Wild” section is found in the Three Sisters Wilderness.

The Whychus Creek Wild and Scenic River Management Plan outlines the approved management of the Scenic segment of the river corridor which begins at the Wilderness boundary and ends at the hydrological Gauging Station 4 miles south of the City of Sisters. This section is to be maintained and enhanced as a near-natural environment. The riverbanks are to be largely undeveloped and primitive, but are allowed to be accessible in places by roads or trails. Inaccessible areas which currently have little use and which provide high quality wildlife refugia are to be retained.

The Plan describes the Scenic segment having limited improvements with a gradient of management controls so areas closer to the City of Sisters would provide more facilities to manage use and higher reaches closer to the wilderness would provide fewer facilities. A few

recreational facilities close to the City of Sisters are allowed to be developed in order to manage use to protect river values and provide education, interpretive, and stewardship information. Recreational facilities such as trails or dispersed camping areas are to be designed or managed to protect riparian areas, relocated, or removed. Access points such as trailheads, parking areas, information kiosks, or viewpoints are to be strategically located in the corridor or adjacent to the corridor to manage recreation use. Opportunities are to be provided in this section for semi-primitive recreation experiences associated with enjoying the water, forests and mountain views while hiking, watching wildlife, camping, hunting, and fishing.

Protecting river values and meeting the purpose and need of the project - This alternative does not meet Purpose and Need to protect the creek's outstandingly remarkable values and it is inconsistent with the Whychus Wild and Scenic River Management Plan.

- All access by "self discovery" is the same as uncontrolled use and does not manage or protect riparian areas or other sensitive habitats, cultural resources, or scenery, and will lead to a degradation of river values. This approach could work in a remote spot that receives very little use but not 4 miles from the city of Sisters in an area that is known and receiving growing use.
- Restoration is unlikely to be successful without removing the offending impact, which if this alternative was implemented, would be uncontrolled foot access and user trail development.
- Maintaining "Self discovery" is a goal of the Whychus Creek Wild and Scenic River Management Plan. According to the management plan, recreation managers believe this can be most successful in more remote areas of the upper scenic river corridor, not areas close to urban developments. The majority of the less sensitive uplands of the project area would also remain available for self discovery.
- Long term stewardship of the area, as cultivated by educated visitors is an important goal of the Management Plan. Remaining silent on river values and low impact behaviors, and attempting to hide this recognized nationally important river would not fulfill our management responsibility to the river and the present and future generations for who it was protected.

Alternative 5 - More Development & Improved Access and Recreation Experience

Four individuals believed there should be more access and recreational developments (also see Issues). Elements that were proposed include:

Trail Bridge - Provide access across Whychus Creek for hikers and bikers by installing a single log stringer bridge near the Metolius/Windigo trail creek crossing.

New single track bike trail into the canyon- Provide a higher quality experience for mountain bikes by building a new single track trail into Whychus Canyon above Rd 900.

Larger parking areas -Provide more capacity in parking areas at Rd 442 and 370.

Link to trails downstream- Link the trails to Trails near Rd 220 with a parking lot. More trails upstream of the project area

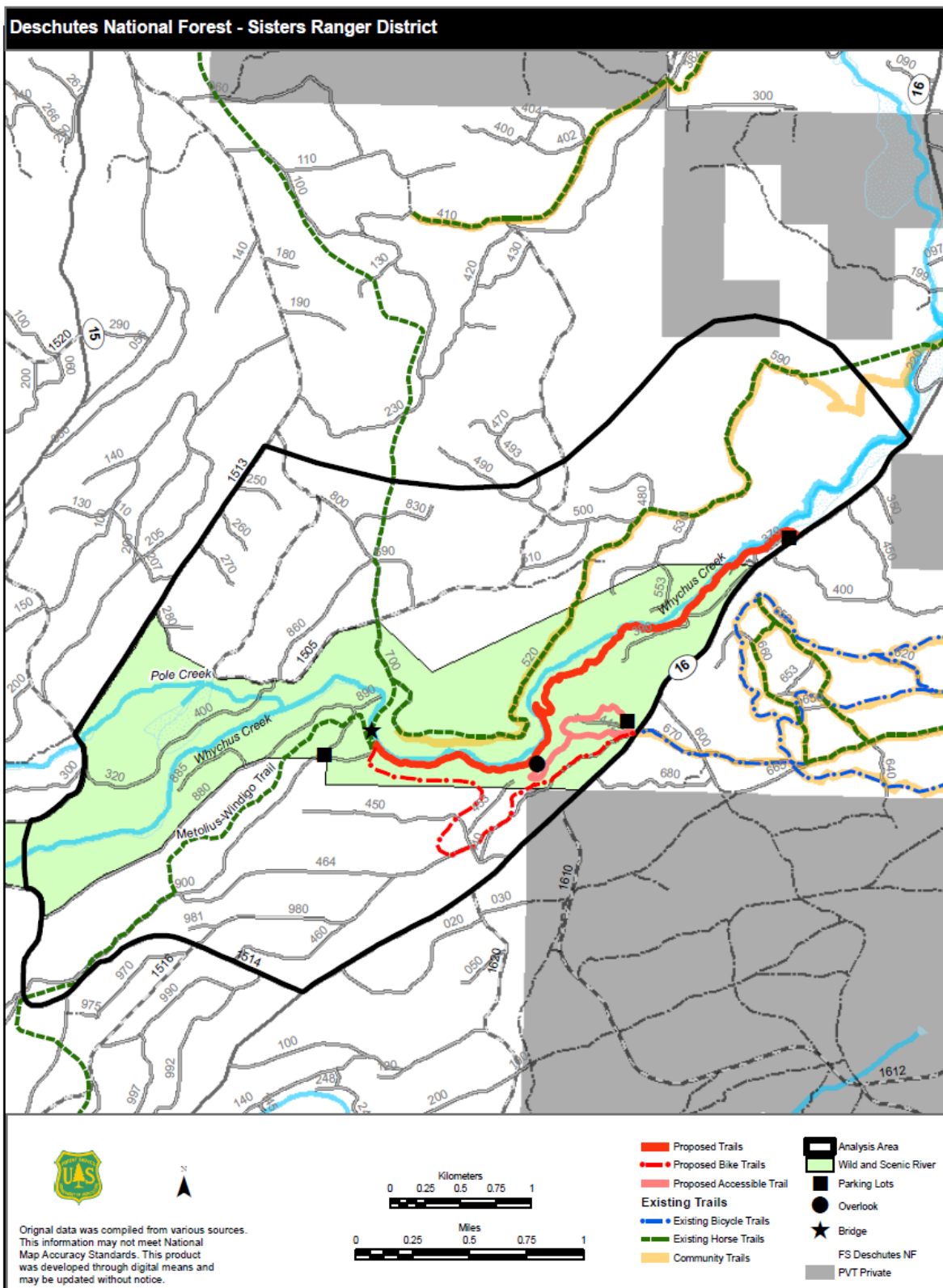


Figure 11 - Alternative 5- More Development/Improved Access

This alternative was considered but not analyzed in detail because it does not meet Purpose and Need to protect the creek's outstandingly remarkable values and it is inconsistent with the Whychus Wild and Scenic River Management Plan. The following discussion summarizes the Team's analysis of the proposal and concerns.

Recreation is a “Significant” but not “Outstandingly Remarkable” Value. Protection and enhancement of the Whychus Creek's Outstandingly Remarkable Values (geology, hydrology, fisheries, scenery, prehistoric resources and Native American traditional use) takes precedent over enhancing significant values such as recreation. Further explanation follows below.

A Trail Bridge over Whychus Creek- The Whychus Creek Wild and Scenic River Management Plan Standards and Guidelines would allow a new bridge over Whychus Creek only if needed to protect the creek's Outstandingly Remarkable Values. The hydrology of Whychus Creek includes flashy flows with frequent winter floods. The large wood in the stream often moves with floods and makes the design and construction of a bridge which would protect river banks and instream fish habitat complicated and expensive. The Forest Service Hydrologist has reviewed the site and found no resource damage to riparian areas from crossing attempts warranting a need for a bridge. The Sisters Trails Alliance submitted this comment during the Wild and Scenic River planning process and Ranger Bill Anthony clarified the plans intent in his letter to the Sisters Trails Alliance (Anthony, 2010).

“Facilities are allowed in the corridor primarily for resource protection not for facilitating access. There is a concern that a bridge would link the Rd 900 area with the Three Creeks Road- Metolius/Windigo Connector Trail on the other side of the river and the Metolius/Windigo trail. This is likely to increase use beyond the desired levels for a semi-primitive experience set by the Management Plan. There have also been hopes expressed to use this area as part of an event route (ie. Sisters Mountain Bike Festival) which is inconsistent with Management Plan (WWSR-R-10). We recognize a bridge would make crossing the creek safer and more convenient but it would also change the desired semi-primitive character. Safety issues can be addressed by encouraging people not to cross the creek when the water is high.”

We will continue to monitor the impacts of this trail crossing on the creek's Outstandingly Remarkable Values and public safety.

A New Single Track Mountain Bike Trail into Whychus Canyon- The proposed mountain bike trail location enters a significant wildlife refugia identified by the Forest Service Wildlife Biologist. Constructing a trail in this area would affect remote areas important for wildlife habitat, increase use beyond desired levels, and be inconsistent with the Whychus Creek Wild and Scenic River Management Plan Standards and Guidelines.

Central Oregon and the Sisters area already provide a wealth of mountain bike opportunities. There are 25 miles of specialized mountain bike trails located immediately adjacent to the Whychus Creek on the Peterson Ridge/Sisters Mountain Bike Trails System. Another twelve trails in Sisters provide 37 miles of shared use opportunities for bikes, horses and hikers. There are another 38 miles of paved bike routes near Sisters and there are hundreds of miles of dirt roads that can be ridden. These opportunities are displayed on the Sisters Trails Alliance Website at: <http://www.sisterstrails.com>.

Deschutes National Forest Recreation Specialists have found that both horses and mountain bikes cause impacts to trails that increase soil erosion and require more maintenance. For this reason in the Plan required that riverside trails (except the Metolius/Windigo where it crosses Whychus Creek and the Three Creeks Road- Metolius/Windigo Connector) would be limited to foot traffic and no new trails open to horses or bikes are planned next to the creek to protect river values or in important wildlife areas to reduce disturbance. Mountain bikes can continue to pass through the river corridor on existing designated routes and trails as planned in this project.

Larger parking areas -Providing more capacity in parking areas at Rd 442 and 370 would be likely to create facilities that could increase use beyond the desired levels in the Management Plan.

Link to trails downstream- Linking the project area trails to trails downstream near Rd 220 with a parking lot or creating more trails upstream could again increase use beyond the desired levels in the Management Plan. Creating trails upstream of the project area would also compromise areas identified as high quality wildlife refugia and would be inconsistent with the Wild and Scenic River Management Plan. The areas downstream near Rd 220 and upstream are also outside the project area and outside the scope of this analysis.

Protecting river values and meeting the purpose and need of the project - This alternative does not meet Purpose and Need to protect the creek's outstandingly remarkable values and it is inconsistent with the Whychus Wild and Scenic River Management Plan.

- The proposal is likely to increase use beyond the desired levels in the Management Plan.
- The proposed bike trail location enters an area identified by the wildlife biologist as an important wildlife refugia and thus is inconsistent with standards and guidelines to protect wildlife habitat.
- A bridge is not needed at this time to protect Outstandingly Remarkable river values such as hydrology and it could negatively change the desired semi-primitive character by increasing use. A stable bridge would be difficult and expensive to construct because of Whychus Creek's flood events and because of the large wood in the stream above the site which moves downstream during high water events.
- Linking the area to other trails or creating more trails may also increase use beyond desired levels and the areas proposed are outside the planning area and current planning effort.

Project Design Criteria and Mitigation Measures Common to all Action Alternatives

Both of the Action Alternatives would meet direction in relevant laws and policies, and the standards and guidelines in the Deschutes National Forest Land and Resource Management Plan as amended by the INFISH, Northwest Forest Plan, and the Whychus Creek Wild and Scenic River Management Plan, and other plans discussed under management Direction. In addition, the Alternatives comply with the project design criteria for the Deschutes and Ochoco National Forests Programmatic Biological Assessment (2006).

The difference between the project design criteria and mitigation measures is that project design criteria are considered routine, have been used on numerous similar projects, and are either incorporated into contract provisions or accomplished between appropriate resource specialists, and have proven to be effective.

Mitigation measures are site-specific, are usually assigned to specific units, and are used to avoid, minimize, rectify, reduce, or compensate an impact (40 CFR 1508.20). For example, a PDF may include a seasonal closure for unknown nest sites (to be applied if discovered); a mitigation measure would place a seasonal closure on a known nest site specific to a unit. PDFs and mitigation measures are used as a basis for determining and disclosing effects in the Environmental Consequences discussions. The sources of the project design criteria and mitigation measures include but are not limited to: Forest Plan goals, objectives, or standards & guidelines; Project Design Criteria from the Programmatic BA; Best Management Practices; conservation strategies; and Invasive Plant Prevention Practices.

Hydrology/ Fisheries

Parking Area Design on RD 900

- If Alternative 2 is selected design this parking area to avoid overland flow into the adjacent intermittent channel with grading and drainage.

The following Project Design Criteria for recreational activities are from the Ochoco Deschutes Programmatic Fisheries Biological Assessment (USDA Forest Service 2006). All aspects of the Project Design Criteria would be met for the proposed action.

Excluded Activities:

- In-channel work in streams accessible to steelhead.

Large wood

- Do not remove standing/down wood from Riparian Habitat Conservation Areas unless health and safety and/or forest health issues require treatment (as determined and confirmed by district silviculturalist and fisheries biologist) to meet Aquatic Conservation Strategy or Riparian Management Objectives. Hazard trees may be removed from Riparian Habitat Conservation Areas if needed to allow for the normal operation of the

recreation/special use site, or if a liability issue arises. Hazard trees within the Riparian Habitat Conservation Areas that represent an opportunity for topping for wildlife needs should be retained as snags.

- Do not retard attainment of coarse down woody debris objectives within Riparian Habitat Conservation Areas as determined by vegetation type within the immediate project site.
- Do not retard attainment of in-stream wood objectives established in the watershed analysis. Allow hazard trees that can reasonably fall into the water body to be felled in the water body to maintain fish habitat and hydrologic function. Hazard tree felling in streams will not disturb listed fish or spawning areas. Site will be surveyed within 7 days prior to the implementation of the project by a qualified fish biologist to ensure no listed fish are present. If listed fish are present then the tree will not be felled or if felled, not felled into the water.

Water Temperature

- Do not allow activities that alter flow regimes that lead to a measurable increase in stream temperature. A hydrologic analysis will be conducted and documented in the environmental document for the project (see Hydrology Report). Alteration of the flows must be insignificant or discountable. Do not allow removal of vegetation providing shade to the stream as determined by using a solar pathfinder or stream temperature model or strategy.

Chemical Contaminants

- Dust abatement using Earthbind, will not occur on roads or trails within 50 feet of streams containing accessible Mid Columbia River steelhead habitat or bull trout habitat.
- Refuel and lubricate equipment at least 150 feet from streams.

Sediment and Substrate

- Do not allow ground-based machinery (for maintenance and construction activities) off new or existing trails or roads within Riparian Habitat Conservation Areas that increases soil compaction or removes vegetation that exposes soil to erosion processes. Within designated campgrounds (within Riparian Habitat Conservation Areas), machinery will not leave designated roads or parking areas.
- Control road traffic during wet periods to prevent damage to Riparian Habitat Conservation Areas.

Bank Stability

- Activities should not reduce the amount of vegetative cover to the point of creating streambank instability.

Scenery

- Facilities will be designed to meet Recreational Opportunity Spectrum guidelines

Cultural Prehistory and Traditional Use

- Cultural sites will be avoided or protected during restoration actions as specified by the archeologist. Site specific prescriptions will be developed for dispersed campsite restoration where cultural sites exist. In the event that previously unknown sites or artifacts are found during project implementation, they will be flagged and operations in the area avoided until an archaeologist is consulted.

Wildlife

- Consult with the Wildlife Biologist as needed for any wildlife habitat issues which arise during implementation.
- Prevent disturbance to nesting birds during breeding season.
 - Any active raptor nest stands found during management activities will be protected from disturbing activities within ¼ mile of the nest by restricting site disturbing operations during the following periods:

| | |
|--------------------------------|----------------------|
| Sharp-shinned and Coopers hawk | April 15 – August 31 |
| Northern goshawk | March 1 – August 31 |
| Red-tailed hawk | March 1 – August 31 |

Botany and Ecology

- All equipment and vehicles used in the project should be clean of invasive plant seed and dirt (Weed Free).
- All materials such as gravel, rocks, etc. should be free of invasive plant seed (Weed Free).
- Minimize soil disturbance and retain native vegetation, in and around project activity areas, to the extent possible consistent with project.
- Plant materials used for restoration should be native and from local sources.

Monitoring Common to all Action Alternatives _____

Riparian Management Objectives (as specified Inland Native Fish Strategy - INFISH (1995))

INFISH standards and guidelines for Riparian Habitat Conservation Areas that prohibit or regulate activities that retard the attainment of Riparian Management Objectives at a watershed scale. The primary focus of monitoring is to verify that the standards and guidelines are applied during the project implementation.

Monitoring element: Compliance of final on the ground layout of trail alignment (both Action Alternatives) and parking area off Rd 900 (Under Alternative 2 only) with RMO's. No sediment contribution from trails, roads, or restored campsites

Type of Monitoring: Implementation/Compliance

Methods/Thresholds:

Before Construction: Hydrologist or Fisheries Biologist will perform a final on the ground review before construction and restoration actions and make any needed changes in consultation with Recreation Specialists.

After Construction: Yearly surveys of riparian trails and roads to detect sources of sediment delivery are required by the Whychus Creek Wild and Scenic River Management Plan.

Frequency/Duration/Required Action: Before construction and yearly after construction. Redesign trail alignments or other actions which may deliver sediment. If subsequent yearly monitoring identifies sediment sources, repair drainage or change the alignment if physically and economically feasible. Otherwise close and restore the trail, road, or sediment source.

Responsibility: District Hydrologist and Fisheries Biologist.

Cultural Prehistory and Traditional Use

Continue monitoring of the Whychus House Cave closure and remove new user trails as needed while providing discreet access for Forest Service and volunteers to monitor the site.

Other general monitoring actions are outlined in the Whychus Creek Wild and Scenic River Management Plan (USFS 2010).

Comparison of Alternatives

This section provides a comparison of the alternative by issue.

Table 2 - Whychus Portal Project Alternative Comparison

| Issue | Alt 1 | Alt 2 | Alt 3 |
|--|---|---|---|
| Level of recreational development | | | |
| Hiking trails- | 5 miles user trails | 3.9 miles total *2.8 miles river trail *1.1 miles accessible trail loop on top of canyon <i>(New construction= 2.8 miles Improve 1.1 miles of user trails, close 3.9 miles of user trails)</i> | 2.0 miles total *1.1 miles river trail *0.9 miles accessible trail spur on top of canyon *0.02 miles from Rd 880 gate/parking lot to Met/Windigo trail <i>(New construction= 1.5 miles Improve 0.5 miles of user trail, close 4.5 miles of user trails)</i> |
| Bike Trails- | 0 miles | 2.9 miles roads to trail within 50 feet of existing road centerline | 2.9 miles on existing road |
| Roads | 34 miles system roads 1.1 miles user roads | 23.7 miles system roads *Close 4.6 miles *Decommission and restore 6.2 miles *Close 1.1 miles user roads | 23.2 miles system roads *Close 5.1 miles *Decommission and restore 6.2 miles *Close 1.1 miles user roads |
| Parking areas | At least 12 | 3 Parking areas *At Rd 370- 5 cars *At Rd 440- 10-15 cars * At Rd 900- 5 cars | 3 Parking areas *At Rd 370- 5 cars *At Rd 440- 10 cars * At Rd 880- 5 cars |
| Overlook | No managed access to cliffs | Enclosed area of mostly native materials *Restroom * Signs nearing parking area focused on stewardship & low impact behaviors | Enclosed area of mostly native materials * Minimal signs nearing parking area focused on low impact behaviors |
| Dispersed Camping | 15 or more sites with motorized access | 1-2 walk-in sites at Rd 900 | No dispersed camping in project area |

Comparison of Alternative Effects

This section provides a summary of the effects of implementing each alternative on the Outstandingly Remarkable Values and other river values or issues.

Table 3 - Whychus Portal Project Alternative Effects Comparison

| Topic/Issue | Alternative 1 | Alternative 2 | Alternative 3 |
|---|---|---|--|
| Geology | No actions proposed that affect the resource | | |
| Hydrology | | | |
| Streamflow/ Sedimentation/ Channel Condition | Negative effects | Beneficial effects | Short-term beneficial effects maybe slightly greater than Alt. 2 Greater risk of long-term negative effects if user-trails develop (similar to Alt. 1) |
| Temperature/ Bacteria/ Nutrients | No Effect | No Effect | No Effect |
| Fisheries | User trails are currently not contributing significant amounts of sediment to fish habitat However, unmanaged use is making streambanks more susceptible to erosion and increasing the potential for sediment. | No effect to Redband Trout, Bull Trout, Steelhead or Chinook essential Fish habitat Beneficial cumulative effects Improved streambank stability, reduction in fine sediment from designed trails with waterbars, and restoration of user trails and campsites, and road decommissioning. | No effect to Redband Trout, Bull Trout, Steelhead or Chinook essential Fish habitat Beneficial cumulative effects Improved streambank stability, reduction in fine sediment from designed trails with waterbars, and restoration of user trails and campsites, and road decommissioning. More potential for user trail development |

| Topic/Issue | Alternative 1 | Alternative 2 | Alternative 3 |
|---|--|--|---|
| Scenery | <p>Negative impacts to immediate foreground landscapes by unmanaged use and vandalism</p> <p>Foreground landscapes could be affected in the future if degradation continues</p> <p>Potential for continued degradation. High Scenic Integrity standard may not be met in the future</p> | <p>Positive impacts to immediate foreground landscapes from increasing management controls and restoration of roads, trails, and campsites</p> <p>Foreground landscapes would likely be positively affected by management controls</p> <p>High Scenic Integrity standard would be met in the future</p> | <p>Positive impacts to immediate foreground landscapes similar to Alternative 2. However higher likelihood of user trail formation</p> <p>Higher potential for continued degradation. High Scenic Integrity standard may not be met in the future</p> |
| Cultural Prehistory and Traditional Use and Cultural History | <p>Impacts to prehistoric and traditional use resources continue</p> <p>Whychus House Cave is protected by closure order but more vulnerable because of easier access</p> | <p>Impacts to prehistoric and traditional use resources are reduced by concentrating use on trails of a length likely to satisfy most users</p> <p>Whychus House Cave is protected by reducing access with road closures, and placing parking farther away to discourage use. The route to the cave is obscured and most users will be diverted past the cave to other areas.</p> | <p>Impacts to prehistoric and traditional use resources are reduced by concentrating use on short trails which lead to vista points. Shorter dead end trails may not be as effective at diverting most users and lead to user trail development as people explore.</p> <p>Whychus House Cave is protected by reducing access with road closures, and placing parking farther away to discourage use. Route to the cave is obscured and users will be diverted to an area past the cave but may explore and find the cave after the short hike.</p> |

| | | | |
|--|--|---|---|
| | | <p>Minor short term impacts to site near Rd 900 from restoration</p> <p>2 prehistoric sites are on or near the trail but have reduced risk of erosion</p> <p>4 prehistoric sites are better protected due to road closures</p> <p>Treaty resources are better protected by managed use and reducing road access for vandalism</p> | <p>Minor short term impacts to site near Rd 900 from restoration</p> <p>1 prehistoric sites is on or near the trail but has a reduced risk of erosion</p> <p>4 prehistoric sites are better protected due to road closures</p> <p>Treaty resources are better protected by limited managed use and reducing road access for vandalism</p> |
| <p>Wildlife</p> <p>Lewis' & White-headed Woodpecker Region 6 Sensitive and MIS</p> | <p>Disturbance to habitat elements from tree cutting and shooting. Zone of influence of user trails- 49 acres</p> | <p>No impact to habitat elements. Human disturbance negligible- no impact. Zone of influence of trails- 38 acres</p> <p>Access controls reduce vandalism potential to habitat elements</p> | <p>No impact to habitat elements. Human disturbance negligible- no impact. Zone of influence of trails- 20 acres</p> <p>Access controls reduce vandalism potential to habitat elements, however more potential for user trail development</p> |
| <p>Crater Lake Tight Coil, Region 6 Sensitive</p> | <p>Disturbance to riparian habitat continues . Some potential habitat has been damaged or eliminated</p> | <p>No impact to habitat elements. Trend of impacts to riparian habitat improves</p> | <p>No impact to habitat elements. Trend of impacts to riparian habitat improves, however higher potential for user trails which could degrade riparian habitat /</p> |

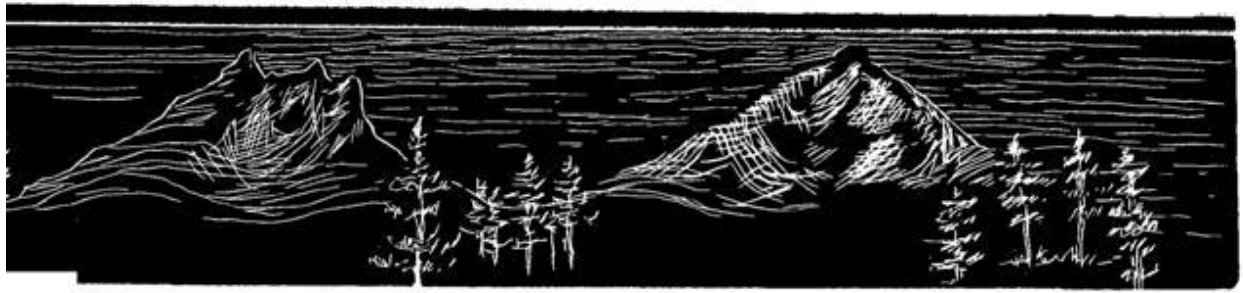
| | | | |
|--|--|--|--|
| <p>Northern Goshawk/Cooper's Hawk/Sharp-Shinned Hawk (MIS)</p> <p>Pinyon Jay/Green-tailed Towhee (Birds of Conservation Concern),</p> <p>Pygmy Nuthatch/Chipping Sparrow (Landbird Focal Species)</p> | <p>Disturbance to habitat elements from tree cutting and shooting. Zone of influence of user trails- 49 acres</p> | <p>No impact to habitat elements. Human disturbance negligible-no effect. Zone of influence of trails- 38 acres</p> <p>Access controls reduce vandalism potential to habitat elements</p> | <p>No impact to habitat elements. Human disturbance negligible-no effect. Zone of influence of trails- 20 acres</p> <p>Access controls reduce vandalism potential to habitat elements, however more potential for user trail development</p> |
| <p>Waterfowl/Great Blue Heron (MIS)</p> | <p>Disturbance to habitat elements from unmanaged use and vandalism. Zone of influence of user trails intersecting riparian habitat – 4.1 acres</p> | <p>No impact to habitat elements. Human disturbance negligible-no effect. Zone of influence of user trails intersecting riparian habitat – 3.6 acres</p> <p>Access controls reduce vandalism potential to habitat elements</p> <p>Disturbance and degradation of riparian habitat is reduced by managed access and trail system</p> | <p>No impact to habitat elements. Human disturbance negligible-no effect. Zone of influence of user trails intersecting riparian habitat – 2.5 acres</p> <p>Access controls reduce vandalism potential to habitat elements</p> <p>Disturbance and degradation of riparian habitat is reduced by managed access and trail system, however higher potential for more user trail development</p> |
| <p>Big Game-Deer and Elk (MIS)</p> | <p>Continued disturbance and habitat degradation from motor vehicles, unmanaged use, and vandalism continues to displace both deer and elk. Degrades forage and cover. Zone of influence of user trails- 49 acres</p> | <p>No impact to habitat elements. Human disturbance negligible-no effect. Zone of influence of trails- 38 acres</p> | <p>No impact to habitat elements. Human disturbance negligible-no effect. Zone of influence of trails- 20 acres</p> |

| | | | |
|--|---|---|---|
| | <p>Activities including shooting at Rd 900 campsite disturb wildlife and damage habitat.</p> <p>Road densities exceed recommendations at approximately 5.8 miles/sq. mile</p> | <p>Disturbance and degradation of riparian habitat is reduced by managed access and trail system</p> <p>Reducing Rd 900 site access and camping reduces evening disturbance for animals moving to water</p> <p>Road densities are reduced to 4.0 miles/sq.mile.</p> <p>Closing and decommissioning roads will reduce human disturbance to the area and assist with reclaiming vegetation, increasing habitat availability</p> | <p>Disturbance and degradation of riparian habitat is reduced by managed access and trail system, however higher potential for more user trail development</p> <p>Closing Rd 900 site to camping greatly reduces evening disturbance for animals moving to water</p> <p>Road densities are reduced to 4.0 miles/sq.mile. 0.5 miles more road is closed by a gate.</p> <p>Closing and decommissioning roads will reduce human disturbance to the area and assist with reclaiming vegetation, increasing habitat availability</p> |
| <p>Vegetation and Ecology</p> <p>Native plant habitats and restoration</p> | <p>Riparian habitats continue to be impacted by unmanaged use.</p> | <p>Riparian habitats improve from management controls</p> <p>Restoration activities have the highest chance of success because length and design of the managed trail system is predicted to occupy and divert most users.</p> | <p>Riparian habitats improve from management controls Higher risk of user trail development from the end points of trails.</p> <p>Restoration activities have lower chance of success than under Alternative 2 because length and design of the managed trail system is not expected to occupy and divert most users and is likely to create a situation where users continually impact recovering areas by creating more user trails.</p> |

| | | | |
|--|--|--|--|
| Pecks penstemon (R6 Sensitive) | Greatest risk to sensitive plant Peck's penstemon from disturbance from vehicles from the open road and invasive plant seed introduction from vehicles, horses or bikes. | Reduced risk to Peck's penstemon with road closure. Some risk remains from invasive plant seed introduction from vehicles, horses or bikes. | Reduced risk to Peck's penstemon with road closure. Some risk remains from invasive plant seed introduction from vehicles, horses or bikes. |
| Invasive plants | Greatest risk of invasive plant introduction along open roads, user trails which are not regularly monitored, and from continued disturbance from unmanaged use. | Lowest risk of invasive plant introduction along open roads and system trails which can be monitored more regularly. | More risk of invasive plant introduction than Alternative 2 because more user trails are predicted which are more difficult to monitor regularly. |
| Recreation | | | |
| Acres of riparian habitat restored (restore dispersed campsites) | 0 acres | 2.5 acres | 3 acres |
| Miles of roads and user trails restored | 0 miles | 6.2 system roads 1.1 miles user roads. 3.9 miles user trails | 6.2 system roads 1.1 miles user roads. 4.5 miles user trails |
| Miles of road closed | 0 miles | 4.6 miles | 5.1 miles |
| Effects to "Primitive character" | Impacts detract. Outstandingly Remarkable Values would continue to degrade. Optimal for "self discovery" Unmanaged use will continue to grow with population and lead to more user trails, roads and devegetation. | Improved scenery. Condition of Outstandingly Remarkable Values would improve. More managed experience than Alt 3 Illegal behaviors will slow with reduced access and change in user groups. Visible parking areas aid enforcement. | Improved scenery. Condition of Outstandingly Remarkable Values would improve. Less managed experience than Alt 2 Illegal behaviors will slow with reduced access and change in user groups. Visible parking areas aid enforcement. |

| Topic/Issue | Alternative 1 | Alternative 2 | Alternative 3 |
|---|---|--|--|
| Recreation Experience Quality-Significant Value | <p>Unmanaged use</p> <p>No change to people's access to dispersed camping sites, roads, or user trails.</p> | <p>Managed use with more controls than Alt 3</p> <p>Increased management controls will change people's experience. Some users lose access to dispersed camps, user trails, or roads. Others gain access to a trail system and overlook.</p> <p>Scenic and environmental quality would be improved with less dumping, sanitation issues, and restoration of trampled areas and unneeded routes.</p> | <p>Managed use with less controls than Alt 2</p> <p>Increased management controls will change people's experience. Loss of access to roads and dispersed sites is similar to Alternative 2, except there will be less access to trails and no dispersed camping.</p> <p>Area below overlook will be inaccessible- no trails, rehab of user trails. (Brads trail and the Grunt)</p> <p>Scenic and environmental quality improvements are similar to Alternative 2.</p> <p>People will experience more encounters because of the shorter trails without loops or connections to other areas.</p> <p>High likelihood users will continue visit areas along the creek such as "Brad Trail" and create more user trails from trail endpoints.</p> |
| Facilities | | | |
| # Dispersed Campsites | 15 | 2 | 0 |
| Parking areas, (equaling about 2.5 acres in riparian areas) | At least 12 | 3 (equaling about 2.5 acres in riparian areas) | 3 (main lot at overlook is smaller) |
| Mountain Bike trail | User trails | 2.9 miles roads to trails within 50 ft corridor | 2.9 miles on road |

| Topic/Issue | Alternative 1 | Alternative 2 | Alternative 3 |
|---|---|--|--|
| Restroom | no | Yes- 1 at overlook parking area | no |
| Developed Viewpoint | No | Yes | Yes |
| Use = # group encounters expected per day | unknown | 6-15 | 6-15 |
| Monitoring | Monitoring by Forest Service and volunteers would occur on user trails. | Monitoring by Forest Service and volunteers would be easier with a trail system to follow. | Monitoring by Forest Service and volunteers would be easier than Alt 1 but more difficult than Alt 2 with less trail access. |



Environmental Consequences_____

This section summarizes the physical, biological, and social environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. It also presents the scientific and analytical basis for comparison of alternatives presented in the chart above.

Basis for Effects Analysis

Project Record

The interdisciplinary team includes Forest specialists for each discipline (see Interdisciplinary Team Members Roster pg 177). Specialists on the interdisciplinary team prepared technical reports to address the affected environment and environmental consequences of the project. All reports are maintained in the project file, located at the Sisters Ranger District office in Sisters, Oregon. In some cases, this chapter provides a summary of the report and may only reference technical data upon which conclusions were based.

Role of Science

Science information improves the ability to estimate consequences and risks of decision alternatives. The effects of each alternative are predicted based on science literature and the experience of the interdisciplinary team. The conclusions of the interdisciplinary team are based on the best available science and current understanding. Relevant and available scientific information is incorporated by reference and a complete bibliography is included at the end of this Environmental Assessment.

Cumulative Effects

The Environmental Consequences disclosures in this Environmental Assessment include discussion of cumulative effects. Where there is an overlapping zone of influence, or an additive effect, this information is disclosed. In order to understand the contribution of past actions to the cumulative effects of the proposed action and alternatives, this analysis relies on current environmental conditions as a proxy for the impacts of past actions. This is because existing conditions reflect the aggregate impact of all prior human actions and natural events that have affected the environment and might contribute to cumulative effects. Most of these actions and natural events are displayed in Table 4.

The cumulative effects analysis in this Environmental Assessment does not attempt to quantify the effects of past human actions by adding up all prior actions on an action-by-action basis. There are several reasons for not taking this approach. First, a catalog and analysis of all past actions would be impractical to compile and unduly costly to obtain. Current conditions have been impacted by innumerable actions over the last century (and beyond), and trying to isolate the individual actions that continue to have residual impacts would be nearly impossible. Second, providing the details of past actions on an individual basis would not be useful to predict the cumulative effects of the proposed action or alternatives. In fact, focusing on individual actions would be less accurate than looking at existing conditions, because there is limited information on the environmental impacts of individual past actions, and one cannot reasonably identify each and every action over the last century that has contributed to current conditions.

Additionally, focusing on the impacts of past human actions risks ignoring the important residual effects of past natural events, which may contribute to cumulative effects just as much as human actions. By looking at current conditions, we are sure to capture all the residual effects of past human actions and natural events, regardless of which particular action or event contributed those effects.

Finally, the Council on Environmental Quality issued an interpretive memorandum on June 24, 2005 regarding analysis of past actions, which states, “agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions.”

The cumulative effects analysis in this Environmental Assessment is also consistent with Forest Service National Environmental Policy Act (NEPA) Regulations (36 CFR 220.4(f)) (July 24, 2008), which state, in part:

“CEQ regulations do not require the consideration of the individual effects of all past actions to determine the present effects of past actions. Once the agency has identified those present effects of past actions that warrant consideration, the agency assesses the extent that the effects of the proposal for agency action or its alternatives will add to, modify, or mitigate those effects. The final analysis documents an agency assessment of the cumulative effects of the actions considered (including past, present, and reasonable foreseeable future actions) on the affected environment. With respect to past actions, during the scoping process and subsequent preparation of the analysis, the agency must determine what information regarding past actions is useful and relevant to the required analysis of cumulative effects. Cataloging past actions and specific information about the direct and indirect effects of their design and implementation could in some contexts be useful to predict the cumulative effects of the proposal. The CEQ regulations, however, do not require agencies to catalogue or exhaustively list and analyze all individual past actions. Simply because information about past actions may be available or obtained with reasonable effort does not mean that it is relevant and necessary to inform decision making. (40 CFR 1508.7).”

The following table lists the groups of actions that have contributed to the existing conditions within the project area. The effects analysis throughout this Chapter considers these past actions as contributing to the current condition.

Table 4. Past actions and events that have contributed to the current conditions in the project area.

| Type of Action | General Description | Status/Timing |
|--|---|-------------------|
| Past Vegetation and Fuels Management | | |
| Numerous Timber Sales and Thinnings on both public and private land later acquired by the Forest Service | Many regeneration harvests (clear cuts), shelterwoods, and overstory removals of large trees. Acres dominated by large trees declined from 70% to 11% since 1953. Management by thinning has dominated since mid- 1990s. | 1900's to present |
| Fire Salvage | Removal of fire killed trees on several fires near Petersen Ridge | 1940's- 1980 |
| Prescribed fire | Associated with vegetation management projects as a fuels treatment | Since 1990's |
| Fire Suppression | Suppression of fire starts from lightning and human caused fires (average 15 starts/year in the watershed) | 1900 to present |
| Wildfires | | |
| Petersen Mill Fire | 580 acre wildfire | 1941 |
| Whychus (Squaw) Creek Fire | 609 acre wildfire | 1959 |
| Weir Grade Fire | 586 acre wildfire | 1969 |
| Rooster Rock Fire | 6,119 acres (approximately 5 acres within project area) | 2010 |

| Type of Action | General Description | Status/Timing |
|---|--|-------------------------------|
| Grazing | | |
| Whychus (Squaw) Creek Cattle and Horse Allotment | A 25,050 acre allotment with 1250 head of cattle in 1932 and 123 by 1982. It was closed in the mid-1980s and inactive until 2009 when it was permanently closed. | 1932-1983 |
| Watershed Restoration | | |
| Whychus Creek Streamside Protection Project | Reduced road access at 59 sites along Whychus Creek, including 3 in the project area. Boulders and signing were installed. Closure of 1.1 miles of streamside system roads and unknown amount of user roads | 2005-2007 |
| Irrigation Diversions | | |
| One active and one inactive diversion | Structures to divert water for irrigation on private land | Early 1900's |
| Hydrological Gauging Station | | |
| Equipment and structures managed first by USGS then Oregon Water Resources Dept | A small building which houses equipment measuring stream flows on east side of Whychus Creek. Other structures-overhead cable car were removed in mid -1990s, remnant concrete on canyon rim removed by hand in 2010 | 1900- present |
| Road construction | | |
| Road network on public and private lands later acquired by the Forest Service | 33 miles of road within 3655 acre project area | Generally completed by 1960's |

| Type of Action | General Description | Status/Timing |
|---|---|--|
| Recreation development | | |
| Metolius Windigo Trail | Approximately 120 mile trail from near the Metolius River headwaters west of Sisters south to Windigo Pass near Crescent Lake. Created by linking sections of existing trails, primarily for long-distance horse riders as alternative to the Pacific Crest Trail. It is now also used by mountain bikes. There is approximately 5 miles of this trail in the project area. | 1980 |
| Three Creek Road /Metolius Windigo Connector Part of Sisters Community Trails Plan | A 4.3 mile connection from the dispersed use area just past the 3 mile mark of Three Creek Road to the Metolius/Windigo trail, utilizing mostly low use roads along the west side of Whychus Creek. Access to the north trail head requires fording Whychus Creek. | 2004 |
| Peterson Ridge Mountain Bike Trail | A 25 mile mountain bike trail system adjacent to the east edge of the project area. | 1 st phase 1989, 2 nd phase 2008 |
| Miscellaneous | | |
| Powerlines | Electric lines and updates to service private land inholdings | 1940's to present |

**Table 5. Ongoing or reasonably foreseeable future actions in the project area
and in the Whychus Creek 10th field watershed**

| Type of Action | General Description | Status/Timing |
|--|--|--|
| Vegetation Management | | |
| Sisters Area Fuels Reduction Project SAFR | Thinning and fuels reduction including prescribed fire | Ongoing |
| Popper Vegetation Management Project Environmental Impact Statement (EIS) | Thinning and fuels reduction including prescribed fire | Currently being planned, implementation expected in 2012 |
| Glaze Forest Restoration Project | Thinning and prescribed fire in second growth, old growth , aspen and in meadows to restore old growth structure | Ongoing |
| Firewood areas | Personal firewood cutting under permit Pole Creek Unit- 2000 acres Three Creeks Unit- 6400 acres | Ongoing |
| Invasive Plant Control | | |
| Deschutes Invasive Plant EIS and | Would allow treatment of new sites. | Currently being planned, implementation expected in 2011 or 2012 |
| PNW Invasive Plant Program and Deschutes Invasive Plant Control Program | Provides standards and guidelines for treatment and prevention of invasive plants. Extensive invasive plant sites are known from downstream of the project area along Whychus Creek. | Ongoing |
| Watershed Restoration | | |
| Three Sisters Irrigation Dam Fish Passage Project | Provides fish passage over irrigation dam and reconnects floodplains. Approximately 1.5 miles downstream of project area | Ongoing |

| Type of Action | General Description | Status/Timing |
|--|---|--|
| Camp Polk Restoration | Stream reconstruction and restoration to restore hydrology and habitat . Approximately 6 miles downstream of the project area. | Phase 2 ongoing |
| Fish Passage and screening on irrigation diversions on Whychus Creek | Screen 6 water diversions Provide fish passage on 10 irrigation diversions | In planning |
| Replace and move -Oregon Water Resources Dept Hydrological Gauging Station | Remove the current gauging station by hand and restore streambank, install high tech sensors and small equipment box in forest area above creek. About 200 feet upstream from current location. | In Planning |
| Travel Management | | |
| Travel Management Rule and Deschutes Travel Management EIS | Motorized Travel on public lands will be restricted to designated routes. Off road or cross country travel will be prohibited. Current off-road use will be subject to enforcement | Currently being planned, implementation expected in 2011 or 2012 |
| Road maintenance | On county and USFS roads 227 miles in watershed | Ongoing/re-occurring |
| Recreation Management | | |
| Sisters Community Trails Plan | Additional connector trails are proposed. One proposal in project are includes a bridge across Whychus Creek | Planning in 2012 |
| Special Use Permits/Recreation | Variety of businesses and educational permits allowing guided recreation in the Three Sisters Wilderness and Three Creeks Lake | Ongoing |

Geology (Outstandingly Remarkable Value) _____

Desired Future Condition

Landscapes within and near the channel of Whychus Creek possess a concentration of complex, diverse, and highly scenic geologic features created by glacial and volcanic events. Steep and narrow canyons, deep bedrock canyons, numerous waterfalls, a variety of channel shapes, broad alluvial valleys, channel-filling giant boulders, water carved caves, and channel beds of polished rock with potholes, broad channels, beds of platy andesites, and rock spires will inspire those that find them. The diverse and varied geological features of Whychus Creek are protected and provide opportunities for learning about the unique volcanic and glacial forces which formed this mountain landscape.



Polished rock channel bed with potholes

Consistent Uses: The following activities are examples of uses that are consistent with protection of the Geology Outstandingly Remarkable Resource Value:

- Low impact rock climbing and recreation that does not damage geological features.

Conflicting Uses: The Geology Outstandingly Remarkable Resource Value could be adversely affected by these activities which are occurring or could occur in the project area:

- Rock climbing; if the rock is chiseled, drilled, or hammered.
- Climbing chalk; which leaves visible “trails” on the rock.



Rock climbing chalk marks rock face

Environmental Consequences

No actions are proposed which affect the Geology Resource. Monitoring of rock climbing effects is required under the Whychus Wild and Scenic River Management Plan and is being cooperatively planned with Central Oregon Rocks, INC. No further analysis of effects is required.



Hydrology

The following analysis is a summary of this report in the Project File (Press 2011). Portions of this chapter are from the Whychus Creek Wild and Scenic River Management Plan (USFS 2010)

Desired Future Condition

The cold waters of Whychus Creek originating on glaciers of the Three Sisters Mountains are the cornerstone of the area's ecology, providing habitat for thriving populations of plants, animals, and fish.

Water quality throughout the corridor is managed for the highest quality possible. Degradation, such as a reduction in shade or increase in sedimentation from riparian trails, roads, or campsites, is addressed through management actions. Natural fluctuations in flow from snow melt and rain-on-snow are expected. Complex channel morphology created by glacial erosion through diverse geological features maintains a variety of water-carved features and waterfalls. Instream wood, which is important for channel stability and function, is recruited and maintained. Wetlands within the Wild and Scenic River boundary are maintained and restored for both their unique habitat and contribution to the river's late-season stream flows.

Pristine high elevation moraine-dam lakes such as Carver Lake are remnants of the Little Ice Age and are part of the headwaters of the creek, providing late-season cool water flows. The Forest Service, scientists, and the community will continue to work together to better understand the threat posed by a future glacial moraine dam failure at Carver Lake and work to find solutions which best protect the community, the values associated with the Three Sisters Wilderness, and the Whychus Wild and Scenic River.

Consistent Uses: The following activities proposed by the project are examples of uses that are consistent with protection of the Hydrology Outstandingly Remarkable Resource Value:

- Consolidation or removal of trails, roads, and campsites in the riparian area.
- Low impact recreation which protects Outstandingly Remarkable Values.

Conflicting Uses: The Hydrology Outstandingly Remarkable Resource Value could be adversely affected by these activities which are occurring or could occur in the project area:

- Activities which alter channel morphology.
 - Removing or cutting instream wood.
 - Driving vehicles through the channel.
 - Bridge or culvert installations which destabilize streambanks.
 - Adding riprap along streambanks.
- Vegetation management which removes future instream wood, causes erosion or removes streamside shade.

Existing Condition

The Whychus Portal Project is located in portions of the Upper Whychus Creek and Middle Whychus Creek subwatersheds. The hydrology analysis area will include these two subwatersheds. However, all the subwatersheds (6th fields) that drain directly into Whychus Creek will be analyzed for cumulative effects, which includes: Headwaters of Whychus Creek, Upper Whychus Creek, Middle Whychus Creek, and Lower Whychus Creek. The existing condition and environmental effects for the hydrology analysis area are described in this document. In addition, the Whychus Creek watershed was analyzed in the Sisters/Whychus Watershed Analysis (U.S. Forest Service 1998b) and the Whychus Watershed Analysis Update (Press 2009, Dachtler 2009).

Precipitation

The precipitation gradient in the Wild and Scenic corridor, as well as the surrounding subwatershed, is dramatic and ranges from 110 in/yr in the headwaters (primarily as snow above 5000 ft) to approximately 15 in/yr near the USGS gauging station (#14075000), a straight-line distance of approximately 12 miles. Precipitation gradients along the east side of the Cascade Mountains are generally steep but usually only show a difference of less than 80 in/yr over the same distance. The Whychus watershed precipitation gradient is the steepest in eastern Oregon and one of the two steepest in the Pacific Northwest Eastern Cascades Region (i.e. eastern Oregon and Washington).

Only eleven percent of the precipitation that falls within the Whychus Creek subwatershed flows as surface water in Whychus Creek and its tributaries. The remaining precipitation evaporates or infiltrates the ground and flows through highly porous lava flows and volcanic ash until it is discharged into the Deschutes River as springs.

Streamflow

The headwaters of Whychus Creek originate in the Three Sisters Wilderness below glaciers on the Three Sisters and Broken Top and from high mountain lakes. Whychus Creek is a perennial stream that enters the Deschutes River near river mile 123. The headwaters consists of numerous perennial streams (Soap Creek, North Fork Whychus Creek, South Fork Whychus Creek, Park Creek, East Fork Park Creek, and West Fork Park Creek) that mostly converge into Whychus Creek approximately 3 miles below the wilderness boundary. Another tributary is Pole Creek which converges with Whychus Creek via Pole Creek Swamp approximately 3 miles upstream of the Whychus Creek stream gage (#14075000). Very little Pole Creek water reaches Whychus Creek in the summer due to diversions and water storage in the swamp (Press 2009). Also upstream approximately 3 miles of the Whychus Creek stream gage (#14075000) an unnamed intermittent tributary enters Whychus Creek on the river right side, opposite of Pole Creek and slightly downstream. Only the lower reaches of the intermittent tributary and Pole Creek, including Pole Creek Swamp, would be included the Whychus Wild and Scenic River boundary.

Wychus Creek is the largest glacial-fed stream that maintains surface flow in the Deschutes Basin. Most other stream flow regimes in the Whychus watershed are spring-fed or a combination of spring-fed and snow-melt. Whychus Creek is the only stream in the Deschutes Basin with a flashy, snow melt dominant flow regime that has a long-term (100 years) flow record. The Whychus Creek gauge near Sisters, Oregon (#14075000), at the lower end of the Wild and Scenic River boundary, has been in operation since 1906. This long-term record provides important long term baseline data used by scientists and agencies to better understand and manage river systems. Analysis of the stream gage record shows that large, short duration rain-on-snow events occur during winter months and lower magnitude, more sustained elevated flows resulting from upland snowmelt occur during the spring months. As a result of these two types of high flow events, the typical hydrograph for Whychus Creek is bimodal and flashy. A large portion of Whychus Creek above the gauge, except for the area within the wilderness boundary, is within the rain-on-snow zone (approximately, 3500 to 5000 ft). As a result, most of the big peak flows are attributed to rain-on-snow events.

Estimated bank full flow, which is similar to the flow associated with the spring-melt season peak flows, was calculated using standard USGS methodologies and is estimated to be 429 cfs at a 1.5 year recurrence interval above the Three Sisters Irrigation District (TSID) diversion and 317 cfs below the diversion (Flynn et al. 2006). The highest flow in the 102 year record is 2000 cfs, which occurred on December 25, 1980, during a rain-on-snow event. In the last 10 years, 6 of the top 11 peak flows on record have occurred, two of which occurred in November 2006 and 2007 (both approximately 1200 cfs). It appears that rain-on-snow events, resulting in high streamflows, are becoming more frequent in the Whychus Creek watershed and may be a result of climate change and/or changing weather patterns.

Above the TSID diversion and within the Whychus Creek Wild and Scenic River Management Plan boundary, Whychus Creek is free-flowing. It is mostly higher gradient and confined within a canyon (Rosgen A and B stream types; Rosgen 1996). It is predominately a transport reach with minimal depositional areas. Below the Whychus stream gage (#14075000) Whychus Creek flows over an alluvial fan, which historically, created large depositional areas and multiple channels. Much of the stream downstream of the TSID diversion dam, located approximately 1.5

miles downstream of the Whychus Creek stream gage (#14075000) and the Wild and Scenic River boundary, was straightened and bermed prior to 1970 for flood control, agriculture, and development. Now, high flows are mostly contained within a single-thread channel and the former floodplain is now a terrace for most of Whychus Creek downstream of the TSID dam.

The TSID diversion, has significantly affected the natural hydrograph resulting in a much decreased summer base flow and a reduced spring snowmelt (bank full) runoff. On average the TSID diverts approximately 150 cfs between April and September. The diversion has reduced the longer-duration, spring snowmelt flows by 37% but has had little influence on the highest and flashiest instantaneous peak flows, which are often associated with rain-on-snow events. There are eight water right claims on Whychus Creek between gage #14075000 and the town of Sisters, and six claims with the highest priority (including the TSID diversion) use to dewater the stream between Sisters and Camp Polk during the summer low flow period (U. S. Forest Service 1998b). Since then, water conservation efforts have been implemented such as improving the efficiency of diversions, transferring water rights, and leasing water rights with the goal of increasing low flow to at least 20 cfs. In the summer of 2008, stream flow was 16 cfs in Sisters, OR. Downstream of the TSID dam, base flow is generally warm and shallow because width-to-depth ratios are high and no low flow channel has developed.

Although, the flow regime in Whychus Creek is dominated by snow/glacial melt, there are wetlands that contribute to the stream flow. Perennial springs and wetlands that supply a significant portion of the stream flow are not unique to the Deschutes Basin; however, they are unique at a regional scale. Numerous year-round springs supply cool water during the summer low flow to Whychus Creek. Some of these springs contribute water to Whychus Creek Meadow, a properly functioning five acre wetland with abundant rushes and sedges and small rivulets. This area is important for ground water recharge and for storing water for late summer stream flows. Historically, Pole Creek Swamp was another wetland providing important late season stream flows. Presently, some of the water from Pole Creek, which formerly supplied the wetland, is diverted for irrigation use. This reduces the late-season flow release from Pole Creek Swamp.

Many new lakes appeared in the Three Sisters area during the 1920s to 1940s during the period of greatest glacial retreat in the Central Oregon Cascade Range. Glaciers formed during the Little Ice Age advanced into the mid 1800s, then retreated, leaving basins behind abandoned terminal moraines. The basins filled with water to form moraine-dammed lakes. These pristine, high-elevation lakes in the headwaters of Whychus Creek, including Carver Lake and Chambers Lake, store cool water used for late season stream flow into the wilderness tributaries of Whychus Creek. It is reported that the highest concentration of past and present Neo-glacial moraine-dammed lakes in the conterminous United States is in the Central Oregon Cascade Range (O'Connor et al. 2001). Several of these Neo-glacial lakes lie within the Whychus Creek drainage amphitheater.

There is a risk of a moraine-dam lake failure at Carver Lake in the headwaters of Whychus Creek, which could result in a debris flow in the headwaters and a sediment laden high flow through Sisters, Oregon. A similar type event occurred in 1970 when a moraine dam lake at the base of Diller Glacier failed and sent a surge of debris and water 5 miles down the North Fork of Whychus Creek. This lake was a 1/3 of the size of Carver Lake and resulted in a sediment-laden flow of 1240 cfs at the upper gage (#14075000).



Carver Lake, a moraine-dam lake formed after 1930, is at the headwaters of a tributary of South Fork Whychus Creek on the northeast flank of South Sister. A 1987 and 1992 USGS report discussed the risk of a moraine dam failure resulting in a breach of Carver Lake (Laenen et al. 1987, 1992). The risk was further discussed in a meeting with the USGS and the City of Sisters on 1/14/09. The USGS explained that while examining the assumptions in the debris flow model used in the 1987 study in relation to worldwide examples from the 2001 USGS study, it appears that the starting conditions of 1987 model are extreme and rare. They believe the “least extreme” scenario in the 1987 study would be the most realistic flow levels. The “least extreme” scenario estimated 10,500 cfs would arrive at the upper gaging station (#14075000) in 2.7 hours and 3,700 cfs would arrive in Sisters shortly thereafter. The probability of Carver Lake breaching is unknown but is believed to be less than the 1 – 5% stated in the 1987 USGS report because most breaches occur within the first two decades after the lake was formed (U.S. Forest Service 2009).

Channel Condition

The diverse geology and glacial origins of Whychus Creek and its tributaries have created a complex array of water-created features as ice and water flows carved their way through different lavas. Throughout the steep reach through the Wild and Scenic section there are numerous waterfalls, cascades, and bedrock chutes that show the dynamic and powerful nature of Whychus Creek. The variety of these features is unique in the region.

Many of these waterfalls, cascades, and chutes run over smooth bedrock. Some cascades flow over speckled andesite bedrock, which was probably exposed during an event triggered from a moraine lake failure. In other areas, black basalt is sculpted by the river in narrow bedrock chutes. In addition, there is abundant large woody debris and many large debris jams that are constantly changing the location and size of waterfalls and cascades.

Although, Whychus Creek is very dynamic with flashy stream flows and a large bedload, there is very little bank erosion in the Wild and Scenic corridor, except in localized areas. Intact riparian vegetation, a properly functioning floodplain, and uninhibited streamflows attribute to the

stability of the stream banks and bed. Whychus Creek channel condition is distinctly different above the TSID diversion than below the diversion.

Above the diversion, mostly in the Whychus Wild and Scenic River boundary, there have been fewer human impacts to Whychus Creek because it is mostly confined by a bedrock canyon and/or it flows through wilderness. Reaches in the Wild and Scenic reach are steeper, mostly Rosgen A (steep, straight, confined) and B reaches (moderate gradient, straight, confined), with bedrock and large cobble or small boulder substrate (Rosgen 1996). Banks are generally well vegetated; however, there is evidence of high flow deposits and high flow channels. There are a few short Rosgen C (low gradient, sinuous, not entrenched) and D (low gradient, braided, not entrenched) reaches above the diversion and all have evidence of high flow or relic channels in the floodplain.

Conditions downstream of the TSID dam are further discussed in the specialists report (Press 2011).

Downstream of the Whychus Portal Project area there are various restoration efforts occurring within the watershed to improve fish habitat conditions in Whychus Creek. The Upper Deschutes Watershed Council is working with irrigators to provide fish passage and to screen diversions. They are also working with the City of Sisters to create a Restoration Management Plan for the creek as it flows through Sisters. The restoration efforts would use bio-engineering techniques to protect structures and it would include management direction for creating floodplain in areas where structures have been lost.

Approximately 4 miles downstream of the City of Sisters Whychus Creek flows through Camp Polk Meadow Preserve, a property owned by the Deschutes Basin Land Trust. Prior to 1943 Whychus Creek was pushed to the side of the valley and straightened resulting in an incised, over-widened, channel with very little fish habitat. Currently this property is being restored through a partnership with the USFS, Upper Deschutes Watershed Council, and the Deschutes Basin Land Trust. Approximately 1.7 miles of stream channel will be re-meandered through the meadow creating abundant fish habitat, increasing wetlands, and reducing stream temperatures. Implementation will occur in two phases and it began in May 2009. Phase one was completed in 2010. A similar type project is also being planned for another private meadow property approximately 9 miles downstream of the City of Sisters at Rimrock Ranch.

Water Quality

The Whychus Watershed Analysis (U.S. Forest Service 1998b) and the Whychus Watershed Analysis Update (Press 2009) discusses how the State designated beneficial uses of the Deschutes Basin apply to waterbodies in the Whychus analysis area. Water quality parameters associated with beneficial uses for waterbodies in the Whychus Portal Project analysis area that have been altered from historic conditions are flow, temperature, dissolved oxygen, and sediment.

303(d) Listed Streams

The State of Oregon is required by the Clean Water Act, Section 303(d), to identify waters that do not meet water quality standards. Whychus Creek, throughout its length, is listed on the

Oregon 2004/2006 303(d) list for water quality exceeding the State standard established in 2004. Lower Whychus Creek, outside the Whychus Portal Project area, has exceeded the 7-day average maximum water temperature standard for salmon and trout rearing and migration which is 18° C (ODEQ 2007). Although stream temperatures are not above the State standard along the entire length, Whychus Creek is still listed as impaired its entire length because the listing criteria is based on beneficial uses. Steelhead trout were reintroduced in Whychus Creek in 2007 and efforts are ongoing; however, a state standard for steelhead spawning in Whychus Creek has not yet been set. Therefore, a potential state standard was evaluated by the Upper Deschutes Watershed Council based on the state standard set for the Lower Deschutes River (Hill et al. 2008). Lower Whychus Creek water temperatures also do not meet the potential state temperature standard for salmon and steelhead spawning (January 1 through May 15, temperatures not to exceed 13 °C) (Hill et al. 2008).

States are required to develop Total Maximum Daily Load allocations, which include Water Quality Management Plans for 303(d) listed waters. The Upper Deschutes River Subbasin Total Maximum Daily Load and Water Quality Management Plans are being planned and cover all the subwatersheds in the Whychus Portal Project area. A Memorandum of Understanding signed May 2002, between Oregon Department of Environmental Quality and the U. S. Forest Service, designated the Forest Service as the management agency for the State on National Forest Service lands. To meet Clean Water Act responsibilities defined in the Memorandum of Understanding, the Forest Service is responsible for developing a Water Quality Restoration Plan, which is now in draft form (U.S. Forest Service 2004). Activities proposed in the Whychus Portal Project area are in compliance with the draft Water Quality Restoration Plan.

Temperature

The Whychus Watershed Analysis (U.S. Forest Service 1998b) and the Whychus Watershed Analysis Update (Press 2009) analyzed stream temperature data Whychus Creek. Temperature monitoring has continued in Whychus Creek, but 7-day maximum averages have only been calculated through 2005.

Water temperature within the Whychus Wild and Scenic River boundary and Whychus Portal Project area is consistently below the State water temperature standard and contributes to the exceptional water quality in this reach. Stream temperatures in Whychus Creek progressively get warmer as water moves downstream from the 1514 rd to the City Park in Sisters (Table 3).

Water temperature in Whychus Creek below the 16 road, outside the Wild and Scenic River boundary, has been consistently above the State Water Quality standard for salmon and trout rearing and migration. Cold water springs 1.6 miles from the mouth of Whychus Creek lower water temperature in Whychus Creek below the 2004 temperature standard. Temperature monitoring by the Upper Deschutes Watershed Council from 2005 - 2008 also show that temperatures outside the Wild and Scenic River boundary in Whychus Creek do not meet the potential state standard to protect steelhead spawning for nearly 25 miles from Sisters to the Deschutes River (Hill et al. 2008).

Insufficient in-stream flows have been the main reason for high water temperatures in Whychus Creek. Reduced base flows increase the amount of time water is exposed to solar radiation and

reduces the amount of water available for riparian vegetation. The lack of sufficient riparian vegetation also exacerbates channel erosion and widening, leading warmer stream temperatures from increased surface area. Below the TSID diversion low flow is significantly reduced as is riparian vegetation. Average low flow above the diversion in August is 92 cfs and, due to water conservation efforts, low flow below the diversion has been increased from 1 cfs to 15-20 cfs. Target flows for Whychus Creek, based on Oregon Department of Fish and Wildlife instream water rights, is 20 cfs upstream of Indian Ford Creek and 33 cfs downstream of Indian Ford Creek.

Table 6. Water temperature monitoring in the Whychus Watershed Analysis Area (sites on the same stream listed from upstream to downstream).

| Stream | Period of record | Max 7-day ave. max. temperature | 2003 Water Temperature standard |
|---------------------------------------|----------------------------|--|--|
| Whychus Ck @ 1514 rd | 1997-1999, 2002, 2006 | 14.4° C | 18° C |
| Whychus Ck @ gaging station #14075000 | 1991, 1994-2000, 2002-2006 | 16.3° C | 18° C |
| Whychus Ck @ 4606 rd foot bridge | 1999 - 2005 | 20.4° C | 18° C |
| Whychus Ck @ City Park | 1997-2006 | 24.4° C | 18° C |

Dissolved Oxygen

Dissolved oxygen is directly related to water temperature and biological activity and was analyzed in the Sisters/Whychus Watershed Analysis (U.S. Forest Service 1998b). Whychus Creek has reached dissolved oxygen levels as low as 8.8 mg/L and 94% saturation in summer low flow months downstream of the Whychus Wild and Scenic River boundary. Although dissolved oxygen in this stream has not been measured according to the State protocol, it could be below State standards downstream of the Wild and Scenic River boundary (U.S. Forest Service 1998b).

Bacteria/Nutrients

Water quality monitoring of nitrates, phosphorous, and E. coli on Whychus Creek showed that nutrients and bacteria levels were low near the Whychus Portal project area (U.S. Forest Service 1998b).

Sedimentation

The amount of fine sediment transported to or eroded within a stream channel can affect the beneficial uses of water, and is frequently used as a measure of overall water quality. Oregon administrative rules addresses sediment through a turbidity standard that states, “No more than 10 percent cumulative increases in natural streams turbidities shall be allowed, as measured relative to a control point immediately upstream of the turbidity-causing activity” (OAR 340-

041-0336; ODEQ 2003). For this report, sedimentation, including turbidity and fine sediment in substrate, will be analyzed because of the effects on channel morphology and aquatic species. The Sisters Ranger District has monitored turbidity, percent fine sediment in spawning gravels, cobble embeddness, and bank stability, all of which are parameters associated with fine sediment.

The Sisters/Whychus Watershed Analysis analyzed sediment in Whychus Creek (U.S. Forest Service 1998b). Within the Wild and Scenic River boundary bank erosion is minimal and limited to areas of natural channel migration and to short sections where erosion from user created trails is affecting the streambanks. As a result, fine sediment in the Wild and Scenic boundary was nearly half the amounts found near Sisters. Generally, turbidity in this reach is low with short events of natural high turbidity from glacial runoff in the late summer. Aquatic macroinvertebrate sampling results for Whychus Creek collected near the gaging station during 1989-1999 (Lovtang and Riehle 2000) showed the macroinvertebrate community was not very diverse but had a good representation of water quality sensitive taxa.

Downstream of the Wild and Scenic boundary, the percent of the substrate that is fine sediment is thought to be high due to extensive bank erosion. In 1997, up to 13% of the streambanks within the channelized reaches of Whychus Creek were unstable. This value may be higher now due to recent high flow events. At a depositional area on the Camp Polk property, up to 13 feet of erosion was observed during three flood events in the fall of 2007 (Senkier per. comm. 2009). These highly eroding banks can lead to spikes in turbidity levels during high flow events; however, turbidity levels quickly dissipate as flows decrease. Turbidity levels in Whychus Creek on USFS lands are mostly only 1-2 Formazin Turbidity Unit or Jackson Turbidity Unit.

Despite high fine sediment contribution, gravel embeddedness was not found to be high in Whychus Creek during the 1990 stream survey. However, streambed substrate was sampled using pebble count methods during the 1997 stream survey and fine sediment was higher downstream of the Wild and Scenic River boundary in the reach between Sisters and the TSID diversion, which could cause some gravel embeddedness (Dachtler 2009). Aquatic macroinvertebrate sampling results showed that clean water taxa richness was reduced at the Rd 4606, which is likely a reflection of high water temperatures and fine sediment (Lovtang and Riehle 2000).

Roads and trails adjacent to or that cross Whychus Creek contribute some sediment as do devegetated and compacted dispersed camping areas. Within the Whychus Wild and Scenic boundary these exist but are less prevalent than downstream because of the steep terrain.

The close proximity of Whychus Creek to Sisters and the lack of developed campgrounds has contributed to the creation of user created dispersed campsites along with user created roads, fords and trails. Over time the impacts of focused recreational use, such as off-road use and dispersed camping have impaired sensitive streamside riparian habitat. This use has contributed to compacted streamside soils, increased sedimentation, runoff to streams, and the loss of streamside vegetation. Stream crossing and “creek crawling” with vehicles can lead directly to stream pollution, bank sloughing, destruction of trout and salmon habitat, and the spread of invasive plants to downstream areas.

In addition, system roads that were analyzed to be closed under past timber projects were often never physically closed or made hydrologically stable (i.e. removed culverts, installed drainage). The continued use of these unmaintained Forest Service roads keeps them from revegetating and perpetuates any erosion or sediment runoff problems. User created roads have similar problems but they can be worse as they are created by users and are not designed with proper drainage features to withstand precipitation and runoff.

The Forest Service has recently made efforts to reduce some of the sedimentation and riparian plant effects from roads and dispersed camping (Press 2009). The Whychus Creek Riparian Protection Project (2005-2007) reduced user created roads and fords that go through Whychus Creek, side channels and floodplains from the town of Sisters up to North Fork Whychus Creek near the Three Sisters Wilderness boundary. Boulders were placed to restrict off road vehicle use and prevent vehicles from driving in the stream. Some dispersed camping areas were closed or pulled back from the edge of Whychus Creek. The intent was to provide a limited number of quality dispersed camping opportunities and a more pleasant non-motorized experience that would protect important fish and riparian habitat along Whychus Creek. A total of 59 sites were protected which resulted in the closure of 1.1 miles of system roads and the closure of an unknown amount of user created roads.

In July 2009, the 59 protected sites on Whychus Creek were surveyed to see if they had been damaged or breached and if there were other sites that were overlooked or had become heavily used recently (Dachtler 2009). The sites were split into lower, middle and upper reaches (Wild and Scenic reach): Mainline footbridge (just above Sisters) to lower end of private land, upper end of private land to the gaging station, and the Wild and Scenic reach from the gaging station to North Fork Whychus Creek. Nine sites or 15 % of the sites were breached with four of the sites breached in the lowest reach which is closest to the town of Sisters. Three sites were breached in the middle reach and two in the upper reach (Wild and Scenic reach). Seven of the breached sites were at campsites and a single boulder was moved to create vehicle access to a campsite closer to the stream. At the two other breached sites vehicles had driven cross country around boulders to access closed system roads. Sites were restored, however since July, 3, 2009 more sites have been damaged or breached by vehicles or off road vehicles (Dachtler 2009).

Environmental Consequences

Analysis Issue: Too much or too little development will affect the Outstandingly Remarkable Hydrology Value.

Measures:

- ✓ *Total miles of trails and roads in Riparian Habitat Conservation Area (RHCA), a surrogate for compaction*
- ✓ *Total acres of dispersed camping in RHCA.*
- ✓ *Number of trees removed in the primary shade zone.*
- ✓ *Risk of user-trail development.*

Alternative 1 - No Action

Activities associated with dispersed recreation (e.g., user created roads and trails, sprawl of dispersed campsites, etc.) are being expanded and developed along Whychus Creek, including within the Wild and Scenic River boundary and project area. These activities are either directly or indirectly (e.g., trampling banks or removing streamside vegetation thus making the banks more susceptible to erosion) inputting sediment into these streams. Studies have shown that these types of user created trails experience more trail erosion and soil loss than properly designed and maintained trails (Olive and Marion 2009). There are approximately 5 miles of user-created trails, 11.3 miles of road, and 15 dispersed campsites (≈ 3.75 ac) that connect to or are within the Whychus Wild and Scenic Corridor in the Portal Project area. Continued or increased unregulated use in these areas could result in unacceptable resource damage which would not be consistent with the Whychus Wild and Scenic River Plan. Even with the direction in the Forest Plan, there is more of a risk to the water resource under Alternative 1 because without management controls the pioneering of trails/roads is likely continue. Also, enforcement is difficult because parking areas are not located in easily visible locations.

Alternative 2 –Proposed Action- Direct and Indirect Effects

Streamflow

There would be no negative direct effects to streamflow from the proposed actions but there could be some beneficial direct effects from decommissioning roads and trails. None of the proposed actions would occur directly instream or use streamflow. A 3.9 mile hiking trail within the Scenic corridor of the Whychus Wild and Scenic River would be created. Numerous user-created trails exist in this area and trails would be consolidated and relocated to more stable areas to create this system trail. Only 2.8 miles of the hiking trail would be new trail construction as a result of relocating user-trails to more appropriate locations, which is consistent with the Whychus Wild and Scenic River Plan. In addition, approximately 3.9 miles of user-trails and 2.5 acres of dispersed campsites would be decommissioned within the Scenic corridor. Decommissioning of trails and dispersed campsites near the stream would reduce compacted areas and allow vegetation to reestablish, thereby, reducing overland flow to the stream. Although 2.8 miles of new trail would be constructed within the project area, ultimately there would be a net reduction in trails that would off-set any streamflow effects. Also, the new trail would have better drainage and be located in a more suitable area which would reduce sedimentation effects to the stream. Building a 2.9 mile bike trail with “roads to trails” engineering which is mostly outside of the Scenic corridor, would not affect streamflow because it would be located on the bluff above the creek and outside of the Riparian Habitat Conservation Area.

Approximately, 6.2 miles of road that is within the Scenic corridor or connects to the Scenic corridor would decommissioned. Decommissioning roads would consist of removing it from the official road system, blocking access to the road, and hydrologically stabilizing it. These actions could include subsoiling, scarifying, disguising the road with debris, planting it, and/or adding waterbars. Where possible (depends on archeological concerns and feasibility due to location and site conditions) the road surface would be fractured to improve infiltration. In the long-term,

decommissioning roads would reduce the effects to peak flows by increasing infiltration within the river corridor.

An overlook, restroom, and two parking lots would be developed on existing disturbed areas on the flat bluff above Whychus Creek, outside the Riparian Habitat Conservation Area. These areas are already compacted and far enough away from the stream to not affect streamflow. Moving parking areas further away from the stream may discourage illegal trail and road pioneering and camping; therefore, reducing the amount of future compacted ground in the riparian area. Another small parking lot that would accommodate approximately 5 cars would be constructed at the junction of Rd 880/900. This parking area would be developed in order to decommission most of the large dispersed campsite and parking area near Whychus Creek at the end of the 890 road. Although this parking lot is located in the outer portion of the Riparian Habitat Conservation Area of an intermittent tributary to Whychus Creek, effects to streamflow from overland flow would be reduced by reducing the size of the dispersed camping/parking area and moving the parking area further away from Whychus Creek. Design criteria for this parking area will help reduce any runoff.

Channel Condition

Channel condition would be improved by Alternative 2 by reducing streambank erosion, illegal tree cutting along the creek, dispersed camping on the creek, and user-created trail pioneering. Providing a desirable, sustainable streamside hiking trail within the Scenic Corridor would encourage users to stay on the trail and not pioneer new trails to the creek. Consolidating user-trails to create a sustainable system hiking trail would result in a net reduction of approximately 1 miles of trail. These decommissioned segments would be rehabilitated so that vegetation can reestablish. In addition, the system trail would be located in areas that would not cause streambank erosion.

Closing and decommissioning approximately 6.2 miles of road in the Scenic Corridor and moving parking areas further from the stream and where they would be more visible for law enforcement would help reduce vandalism, illegal camping, and road and trail pioneering in the riparian area. Providing an overlook may also reduce illegal trail pioneering in efforts to see the stream. In addition, decommissioning of road segments and dispersed campsites within the Riparian Habitat Conservation Areas could improve floodplain function by providing more area for vegetation establishment.

Temperature/303(d) Status

The Action Alternative would not lead to any short-term direct effects to water temperature in Whychus Creek. For the same reason, there would be no effect on the 303(d) listing status of Whychus Creek for exceeding the State temperature standard. The building of a system trail and short bike trail, decommissioning of roads, trails, and dispersed campsites, and the development of an overlook, bathroom, and three parking lots in the project area would not remove the primary shade component along Whychus Creek.

Due to the orientation of the Whychus Creek in the project area (mostly south to north), solar radiation on the creek would be most affected by activities on the west side of the creek. All activities would be on the southeast side of Whychus Creek; therefore, having less affect on solar

heating of the creek. Although approximately 2.8 miles of new trail would be constructed in the Scenic Corridor, no shade producing vegetation would be removed. In addition, the overlook, bathroom, and two parking areas would be located outside of the Riparian Habitat Conservation Area of Whychus Creek and would not affect shade producing vegetation.

In the long-term, the project could slightly increase stream shade by increasing the riparian vegetation. Providing a sustainable trail and reducing user-trails and dispersed camping in the riparian area would provide more area for riparian species to grow and would also reduce vandalism such as illegally cutting streamside trees.

Sedimentation

There would be no negative direct effects to sedimentation from the proposed actions but there could be some beneficial effects from decommissioning roads and trails. Approximately 1.1 miles of user-trails would be converted to a system hiking trail along Whychus Creek. Along the user trails proposed to be converted to a system trail, little evidence of erosion and soil loss could be found entering the Creek (Dachtler 2010). Although 2.8 miles of new trail would be constructed within the river corridor, ultimately there would be a net reduction in trails that would off-set detrimental soil acres. Also, the new trail would have better drainage and be located in a more suitable area which would reduce sedimentation effects to the stream. Building a 2.9 mile bike trail with “roads to trails” construction practices would not affect sedimentation because it would be located on the bluff above the creek and outside of the Riparian Habitat Conservation Area. Decommissioning approximately 4 miles of trails within the Scenic corridor and 2.5 acres of dispersed campsites in the RHCA would reduce compacted areas and allow vegetation to reestablish, thereby, reducing erosion and sedimentation.

Approximately, 6.2 miles of road that is within the Scenic corridor or connects to the Scenic corridor would be decommissioned. Decommissioning roads/trails and dispersed campsites within the corridor could reduce sediment inputs to Whychus Creek by improving infiltration on these paths by slowing overland flow from adding debris to the road surface, scarifying, subsoiling, and or planting the road bed.

An overlook, restroom, and two parking lots would be developed on existing disturbed areas on the flat bluff above Whychus Creek, outside the Riparian Habitat Conservation Area. These areas are already compacted and far enough away from the stream to not affect sedimentation. Moving parking areas further away from the stream may discourage illegal trail and road pioneering and camping; therefore, reducing the amount of future disturbed ground in the riparian area. Another small parking lot that would accommodate approximately 5 cars would be constructed at the junction of the 880/900 roads. This parking area would be developed in order to decommission most of the large dispersed campsite and parking area near Whychus Creek at the end of Rd 1514-900. Although this parking lot is located in the outer portion of the Riparian Habitat Conservation Area of an intermittent tributary to Whychus Creek, effects to streamflow from overland flow would be reduced by reducing the size of the dispersed camping/parking area and moving the parking area further away from Whychus Creek. Design criteria for this parking area will help reduce any runoff.

Bacteria/Nutrients

There would be no increase in bacteria or nutrients from the proposed actions but there could be some beneficial effects from providing a restroom away from the creek. The restroom would be developed on an existing disturbed area on the flat bluff above Whychus Creek, outside the Riparian Habitat Conservation Area. By providing a restroom it may discourage people from defecating near the stream.

Alternative 3 - Less Development, Maximize Primitive Character -Direct and Indirect Effects

There would be no short-term negative direct effects to hydrology from Alternative 3 but there could be long-term negative direct effects if users pioneer new trails from trail end points. There may be some beneficial effects slightly greater than Alternative 2 from reducing the net amount of trails and decommissioning more dispersed campsites. Under Alternative 3, there would be approximately 2 less miles of total trail because only 2 miles of system hiking trails would be developed in the Scenic corridor of the Whychus Wild and Scenic River. These system trails would be located in areas of high use and the development of these two trails would remove most of the need for users to pioneer new trails in the gauging station area. However, under Alternative 3, there are two areas where user-trails exist and no system trail is proposed: 1) the area between the overlook and the stream and 2) the stream corridor upstream of the overlook to Rd 1514-900. Enforcement of rules is difficult in both of these areas and despite efforts, trail pioneering could occur. If new user-trails are created effects would be similar to Alternative 1.

The system hiking trail would cause very little new impact because user-created trails would be utilized and improved with less than 0.25 miles of new construction near the stream, as compared with 2.8 miles of new construction under Alt. 2. Along the user trails proposed to be converted to a system trail little evidence of erosion and soil loss could be found entering the Creek (Dachtler 2010). Drainage issues that already exist on these user-trails would be improved or the trail would be slightly relocated, thereby reducing existing overland flow and sedimentation to the stream. Building a 2.9 mile bike trail would not affect hydrology because it would be located on the bluff above the creek and outside of the Riparian Habitat Conservation Area.

Approximately 4.4 miles of user-trails would be decommissioned under Alternative 3. Decommissioning of trails near the stream would reduce compacted areas and allow vegetation to reestablish, thereby, reducing overland flow and sedimentation to the stream and improving riparian vegetation and shade. Also under Alternative 3, 2 additional dispersed campsites (0.5 acres) would be decommissioned thus eliminating dispersed camping at the end of Rd 1514-900 adjacent to Whychus Creek. Restoring this site would substantially reduce overland flow inputs to Whychus Creek from these compacted areas and improve riparian condition. By completely eliminating dispersed camping at the site it would help prevent compaction and devegetation from happening in this area again.

Effects from road decommissioning, parking area construction, and overlook development would be the same as Alternative 2. Effects to bacteria/nutrients would be the same under both action alternatives even though no bathroom would be constructed under Alternative 3. Under

Alternative 2, a bathroom would be installed in the parking lot of the overlook that could produce beneficial effects to water quality by reducing human defecation near the stream. This logic applies to Alternative 2 because a trail connects the overlook to the stream. Under Alternative 3, no trail would connect the overlook to the stream, therefore, there would be no beneficial effect to water quality by providing a bathroom at the overlook parking lot.

Cumulative Effects for Alternatives 2 and 3

The hydrology cumulative effects analysis area includes all subwatersheds (6th fields) that drain directly into Whychus Creek: Headwaters of Whychus Creek, Upper Whychus Creek, Middle Whychus Creek, and Lower Whychus Creek. The analysis time frame is the past 20 years to 20 years in the future. Effects to the hydrology resource from both action alternatives in the Whychus Portal EA would incrementally add to cumulative effects because of the beneficial effects predicted by the decommissioning of roads, trails, and dispersed campsites. The added protection to water quality, channel condition, and streamflow from the Whychus Portal Project would combine with the positive effects from the on-going restoration efforts in the Whychus watershed and the added standards and guidelines and the new boundary from the Whychus Wild and Scenic River Plan. No negative effects greater than those under Alternative 1 are predicted from the action alternatives; therefore, the Whychus Portal Project would not incrementally add to any negative cumulative effects.

Consistency with Northwest Forest Plan/ Riparian Reserve Requirements

The Northwest Forest Plan provides standards and guidelines for Key Watersheds and Riparian Reserves that prohibit or regulate activities that retard or prevent attainment of the Aquatic Conservation Strategy Objectives at the watershed scale (see below). Key watersheds under the Northwest Forest Plan contribute directly to the conservation of the threatened bull trout and resident fish populations. Only a small portion of the project is located in the Northwest Forest Plan area and within a Northwest Forest Plan key watershed and this portion of the project will decommission the Rd 900 which runs along an intermittent stream within a Riparian Reserve.

The road decommissioning will comply with the Riparian Reserve standards and guidelines in the Northwest Forest Plan. Based on the evaluation of the short-term, long-term, and cumulative effects, the Whychus Portal Project is designed to “contribute to maintaining or restoring the fifth-field watershed over the long-term.”

The following standards and guidelines apply to the project:

Riparian Reserves (FW-1) Design and implement fish and wildlife habitat restoration and enhancement activities in a manner that contributes to attainment of the Aquatic Conservation Strategy objectives.

Roads Management (RF-4). New culverts, bridges and other crossings shall be constructed and existing culverts, bridges and other stream crossings determined to pose a substantial risk to riparian conditions will be improved, to accommodate at least the 100 year flood, including associated bedload and debris.

Roads Management (RF-6). Provide and maintain fish passage at all road crossings of existing and potential fish-bearing streams.

Compliance with the Aquatic Conservation Strategy

An essential piece of the Northwest Forest Plan is the Aquatic Conservation Strategy which “was developed to restore and maintain the ecological health of watersheds and aquatic ecosystems contained within them on public lands” (USFS 1994, B-9). Management activities proposed for watersheds must meet the nine Aquatic Conservation Strategy objectives as specified in the Northwest Forest Plan (pages C31-C38). The only proposed action within the Northwest Forest Plan key watershed is the decommissioning of Rd1514-900 road. This section will discuss how the Rd 900 decommissioning within the Northwest Forest Plan area meets the intent of the objectives, and analyzes effects of the Alternatives and their compliance with the Aquatic Conservation Strategy for hydrologic functions and fisheries habitat.

Aquatic Conservation Strategy Objective 1: Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted.

The road decommissioning would help restore this objective because this riparian road would be removed from the system and overflow would be returned to forested land. Decommissioning the road should improve the distribution, diversity and complexity of watershed or landscape-scale features by providing natural runoff patterns and returning it the streamside area to an unroaded status. The Whychus Watershed Analysis (1998) identified road closures and decommissioning as needed actions to help restore the watershed.

Aquatic Conservation Strategy Objective 2: Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include flood plains, wetlands, upsweep areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.

Connectivity would be restored for riparian-dependent species and maintained for aquatic species that use this riparian reserve or intermittent channel because the road in the Riparian Reserve, which may be an obstruction for some species, would be removed. Rd 1514-900 does not cross the stream or reduce connectivity for aquatic species; therefore, removing it would only maintain this Aquatic Conservation Strategy objective. Any short-term sedimentation effects from decommissioning the road would be minimal and would not affect connectivity. Landscape scale aquatic habitat will move toward the natural range of habitat complexity and diversity.

Aquatic Conservation Strategy Objective 3: Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.

The proposed road decommissioning would restore the streambanks by decompacting the road surface and contouring it to the existing slope restoring the natural runoff and sediment regimes.

The long term impacts would add diversity to streambank habitat and may serve to improve streambank structure and stream grade in the long term.

The project would allow for the attainment of this objective and may act to restore the physical integrity of the aquatic system, shorelines, banks, and bottom configurations by reshaping the roadbed to match the adjacent hillslopes. The road decommissioning would be implemented with Project Design Features to maintain the physical integrity of the aquatic system on a local scale and at the watershed scale. The Whychus Watershed Analysis (1998) identified stream-road interactions where fine sediments could be added to the creek as a risk and decommissioning this road would help reduce that risk.

Aquatic Conservation Strategy Objective 4: Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.

The road decommissioning would help restore water quality by reducing sediment input to the stream from a riparian road. Water quality will be improved by this project. There may be some initial sediment in runoff from loose soils associated with the decommissioning but these should only last during the first few rain events and are not expected to produce enough sediment that would impair the water quality of Whychus Creek. The project will maintain the water quality of the stream over the long-term. The project will maintain the biological, physical, and chemical integrity of the system.

Aquatic Conservation Strategy Objective 5: Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.

The road decommissioning does not prevent the attainment of this objective and in the long-term will maintain and would help restore the sediment regime by reducing overland flow and fine sediment that is transported from the road to the intermittent stream by decompacting the road surface and restoring drainage. Localized short term effects such as disturbed soils and streambank recontouring would likely have a minimal impact because only a small percentage of the Riparian Reserves would be affected. Project Design Features help prevent the short-term addition of fine sediments from the project work sites. Long term benefits of the road decommissioning may serve to restore natural sediment transport runoff patterns.

Aquatic Conservation Strategy Objective 6: Maintain and restore in-stream flows sufficient to create and restore riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration and spatial distribution of peak, high, and low flows must be protected.

The road decommissioning would maintain or possibly help restore in-stream flows by reducing overland flow during peak flows. Decompacting the road surface would allow precipitation to infiltrate and reduce concentrated flow on the road that could reach the stream during high flow.

events. Decompacting the road bed would also allow vegetation to reestablish and help slow overland flow and increase infiltration does not prevent the attainment of this objective. In-stream flows are not affected by this project and will be maintained in the range of natural, historic flows. There is no long term impact to flow and flows will not be impacted at the site specific or watershed scale. Flows will not be affected because the stream is intermittent and roadwork will be done outside the channel. The road decommissioning will not increase overland flow in the long term and will restore the roadbed to more natural runoff patterns.

Aquatic Conservation Strategy Objective 7: Maintain and restore timing, variability, and duration of flood plain inundation and water table elevation in meadows and wetlands.

The road decommissioning would maintain this objective and possibly help restore the variability of floodplain inundation. Decommissioning of Rd 1514-900 would not affect the timing or duration of floodplain inundation or wetland and meadow water tables because the flow regime would not significantly change. However, decompacting the road surface would help prevent floodwaters from being concentrated on the floodplain and causing erosion; thus, helping restore floodplain variability. No changes to the intermittent channel would occur. Any impacts from the road decommissioning will be local and site specific and will not impact floodplain function, frequency of inundation or wetland flooding.

Aquatic Conservation Strategy Objective 8: Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distribution of coarse woody debris sufficient to sustain physical complexity and stability.

The road decommissioning would not prevent the attainment of this objective and may in the long- term help restore the species composition and structural diversity of plant communities by decompacting the roadbed so that native vegetation could recolonize the site. Localized short-term effects such as soil disturbance would likely have a minimal impacts due to the small amount of area impacted in the Riparian Reserves and the limited scale of operations along the stream banks. Streambank stability and channel function will not be impacted and will remain in the natural range for the subwatershed.

Aquatic Conservation Strategy Objective 9: Maintain and restore habitat to support well-distributed populations of native plant, invertebrate and vertebrate riparian-dependent species.

The road decommissioning would not prevent the attainment of this objective and may in the long-term help restore habitat to support native species by removing vehicle use and associated disturbance within the Riparian Reserve. Native amphibians and aquatic invertebrates associated with the stream would benefit from restored natural runoff and sediment inputs. Terrestrial vertebrate species and other riparian dependent species would no longer be disturbed by vehicle traffic in the Riparian Reserve. There may be some minor short-term disturbance of the streambank while the road adjacent to the streambank is being recontoured; however, this would provide a long-term benefit to aquatic and terrestrial habitat by removing the road and restoring

the natural runoff and sediment patterns. Disturbance from vehicle traffic to species using this riparian corridor would no longer occur.

Statement of Consistency with Aquatic Conservation Strategy Objectives

In summary, the actions described under both Action Alternatives described above are consistent with the Aquatic Conservation Strategy objectives.

The proposed road decommissioning is consistent with the findings of the Whychus Watershed Analysis in that it would restore stream function to more natural levels and create a connectivity corridor for wildlife species. The project would maintain watershed and landscape scale features such as natural stream bankfull width and floodplain access. The proposed project contributes to Aquatic Conservation Strategy objectives by helping restore landscape diversity, connectivity, streambank integrity, water quality, the natural sediment regime, floodplain variability, plant communities, and habitat maintaining in the Whychus watershed. The physical integrity of nearby aquatic systems and water quality are likely to be improved and restored by the proposed activities.

Fish and their Habitat



Wild Steelhead

A Biological Evaluation (BE) and Biological Assessment (BA) and Fisheries Report were completed describing the effects to threatened, endangered and sensitive (TES) fish species and fish habitat associated with the Whychus Portal Project Area on the Sisters Ranger District. The following analysis is a summary of this report in the Project File (Dachtler 2010a). Portions of this chapter are from the Whychus Creek Wild and Scenic River Management Plan (USFS 2010)

Desired Future Condition

Wild steelhead and redband trout migrate freely along Whychus Creek, resuming their journeys after an interruption of over 40 years. The creek provides high quality fish habitat for native redband trout, and regains its stature as a key area for anadromous steelhead survival. The genetic integrity of the native strain of Interior Columbia Basin redband trout remains intact.

Natural processes keep the river well supplied with wood for pool formation, overhead cover and organic matter for invertebrate production. Riparian vegetation of the floodplain provide streambank stability and shade. Natural inputs of groundwater from tributaries contribute to the high water quality and cool water temperatures. Coldwater springs that recharge the creek help keep water temperatures suitable for successful anadromous fish spawning and rearing. Stream flow volumes are sufficient at all times of year to sustain native fish populations. The naturally high level of fine sand supplied by the glacial headwaters is moderated by floodplains in the middle reaches that allow fine sediments to be deposited off-channel during floods. Middle elevations of the watershed do not significantly contribute additional loads of fine sediment to the streambed. Active floodplains in the middle reaches of Whychus Creek provide diverse off-channel habitats for rearing steelhead trout, redband trout and potentially chinook salmon and bull trout. Fish travel freely along the length of the creek to the Deschutes River and the sea.

Consistent Uses: The following activities proposed by the project are examples of uses that are consistent with protection of the Fisheries Outstandingly Remarkable Resource Value:

- Stream restoration
- Consolidation or removal of trails, roads, and campsites in the riparian area.
- Low impact recreation which does not increase sediment

Conflicting Uses: The Fisheries Outstandingly Remarkable Resource Value could be adversely affected by these activities which are occurring or could occur in the project area:

- Activities which alter channel morphology.
 - Removing or cutting instream wood.
 - Driving vehicles through the channel.
 - Bridge or culvert installations which destabilize streambanks.
- Activities which consistently contribute sediment beyond natural inputs.

Existing Condition

The Whychus Portal Project is located in portions of the Upper Whychus Creek and Middle Whychus Creek subwatersheds. The fisheries analysis area includes these two subwatersheds. However, all the subwatersheds (6th fields) that drain directly into Whychus Creek will be analyzed for cumulative effects, which include: Headwaters of Whychus Creek, Upper Whychus Creek, Middle Whychus Creek, and Lower Whychus Creek.

Fish Species Description

The Whychus Creek watershed has habitat for bull trout (*Salvelinus confluentus*) a federally listed threatened species, and interior redband trout (*Oncorhynchus mykiss*), which is on the Regional Forester's sensitive species list. Redband trout occur within the project boundary and rearing bull trout occur approximately 20 miles downstream of the project area on the Crooked River National Grassland near the Whychus Creek confluence with the Deschutes River. Essential chinook salmon (*O. tshawytscha*) habitat is also defined by National Marine Fisheries Service within the Whychus Watershed. Chinook salmon fry have been reintroduced to the creek starting in 2008.

Other fish species that may occur within the project area, include: brook trout (*S. fontinalis*), brown trout (*Salmo trutta*), longnose dace (*Rhinichthys cataractae*), speckled dace (*Rhinichtys osculus*) and shorthead sculpin (*Cottus confuses*) (Fies et al 1996).

Mid Columbia River steelhead trout (listed threatened below Pelton Round Butte Dams), were also native to Whychus Creek and fry have been reintroduced starting in 2007. These species will be used to analyze the effects to aquatic fish habitats, including habitat of other native species associated with similar habitats.

Interior redband trout are part of the Deschutes River population, and spawn from April to July (Fies et al 1996). The redband trout have been confirmed to be a native population with very little hatchery influence (Phelps et al. 1996). In 1997 a subset of habitat units were snorkeled and electrofished between the gauging station and Chush Falls (Dachtler 1997). Species composition in this section was 93% redband trout and 7% brook trout. The estimated size of redband trout ranged from one to eleven inches with an average size of 6.6 inches.

Fishing pressure in Whychus Creek is very light, with slightly more pressure around the gauging station. The stream offers excellent opportunities to catch redband trout on a beautiful stream with little to no competition from other anglers.

Chinook salmon have been released as fry in Whychus Creek and the Metolius River. The upper Deschutes and Crooked River basins have been identified as Essential Fish Habitat under the Magnuson-Stevens Act. This act protects habitat important to commercial ocean fisheries. The listing included the Upper Deschutes Subbasin with the likelihood future passage of anadromous fish will be passed through Deschutes River dams. Under the new hydropower operating license for Pelton Round Butte Dams, fish passage will be a part of the new operation

at the dam complex on the Deschutes River starting in 2010. This proposed reintroduction marks a return to anadromy in the watershed. Chinook salmon have been released starting in 2008 downstream of the Sokol diversion dam 1.5 miles downstream of the project. Returns of adult salmon to the watershed are not expected until at least 2012.

Steelhead trout were found in the project area prior to the construction of Round Butte Dam in 1964. The summer steelhead run ended in 1968 when the upstream passage was stopped at the Pelton Round Butte hydroelectric project. Today the Mid Columbia River Distinct Population Segment is listed as threatened. Habitat in Whychus Creek may be important for steelhead trout upstream of the Pelton Round Butte Dams, with as many as 1,000 spawners returning to Whychus Creek counted in the 1950s, prior to Round Butte Dam Construction (Nehlsen 1995). Steelhead fry were reintroduced starting in 2007 downstream of the Sokol diversion dam 1.5 miles downstream of the project.

Brook trout have been introduced in high mountain lakes, primarily in the wilderness areas. Fish introduced to the lakes in some cases are suspected to reduce native amphibian populations. These introduced brook trout populations could also be distributing downstream in the watersheds that contained native bull trout. Brook trout reside in Whychus Creek, primarily downstream of the project area or in the high elevation tributaries in the wilderness.

Brown trout were introduced in the 1930's (Fies et al. 1996). Brown trout populations are not monitored in Whychus Creek but tend to be more abundant in the lower reaches. Within the project area, brown trout occurrence has not been documented. Brown trout are found in the Deschutes River, Lake Billy Chinook and in Whychus Creek up to the town of Sisters.

Channel Condition

See discussion under Hydrology. A more extensive discussion of channel stability is also found in the specialists report (Dachtler 2010a)

Downstream of the project area, disconnection from the floodplain has resulted in a narrow riparian area that lines the streambanks. Due to high bank erosion riparian vegetation is being scoured and not replaced. As a result, future large wood recruitment is reduced. Instream large woody debris ranges from 11 to 20 pieces per mile between Sisters and the upper stream gage (#14075000) and between 31 and 48 pieces per mile above the stream gage within the project area. Although large woody debris ranges are generally above the INFISH standard of 20 pieces over 12 " dbh per mile, they are still below historic levels. The loss of large cottonwood galleries from stream incision and low base flows has reduced instream large woody debris near the town of Sisters (USDA Forest Service 1998). Likewise, instream wood was removed for maintenance of irrigation diversion structures after the 1964 flood. Historic densities of were probably closer to the densities found in the project area, upstream of the stream gage. Large woody debris densities upstream of the stream gage in the project area are similar to the large woody debris average density in the John Day and Malheur unaltered C stream type reaches which are 48 pieces over 12" dbh per mile (Cordova 1995).

Fish habitat often changes through the season because of the flashy nature of the stream with periods of high discharge and high turbidity caused by rain on snow events during the fall and winter. Turbid conditions are sometimes present during these events and in the late summer and fall from glacial melt. Periodic high flows most likely change the locations and amounts of woody debris on a frequent basis. This in turn can change the amount and location of slow water fish habitat.

A reach of river in one of the canyon sections (near the Road 1514/900 access) displays plunge pool morphology that provides spawning and rearing habitat for both resident redband trout and steelhead. Quality spawning gravels exist in pockets and in pools throughout the canyon sections. Large substrate boulders throughout the river provide important pocket water habitats.

An area of special interest is the lower-gradient fluvial deposition area fed by several springs that stretches downstream from Road 1514 for 2.1 miles. This area is susceptible to habitat degradation because it does not have the bedrock and boulder substrates that armor much of the rest of the stream nor does it have the protection of wilderness status. This reach may also be important as the uppermost steelhead spawning and rearing area as they are reintroduced to the system. The reach has a lower slope and broad floodplain and is a depositional reach for sediment. Side channels have developed and off channel rearing areas can offer slow water habitats to fish during flood events.

Downstream of the project area, and the Three Sisters Irrigation District dam, Whychus Creek is unstable and is either incised, braiding or both. As a result, there is a substantial fine sediment contribution to the stream from eroding banks. Floodplain connectivity is highly lacking and the sediment regime is out of balance mostly due to past berm construction and removal of large wood resulting in the channel downcutting. Also, there are numerous irrigation diversions, two of which pose as fish passage barriers. More information on water quality and stream flow can be found in the Hydrology Report for this project (Press 2010).

Sedimentation

The amount of fine sediment transported to or eroded within a stream channel can affect the beneficial uses of water, and is frequently used as a measure of overall water quality. Oregon administrative rules addresses sediment through a turbidity standard that states, “No more than 10 percent cumulative increases in natural streams turbidities shall be allowed, as measured relative to a control point immediately upstream of the turbidity-causing activity” (OAR 340-041-0336; ODEQ 2003). For this report, sedimentation, including turbidity and fine sediment in substrate, will be analyzed because of the effects on channel morphology and aquatic species. The Sisters Ranger District has monitored turbidity, percent fine sediment in spawning gravels, cobble embeddedness, and bank stability, all of which are parameters associated with fine sediment.

Several studies have documented increases of fine sediments to stream systems from logging roads, horse trails, ATV trails, hiker trails and biker trails (Lewis 1998, Foltz 2006, Olive and Marion 2009, Malecki 2005). Excessive erosion from these trails or roads cause fine sediments to enter streams in quantities above natural levels that the stream cannot process then harm to fish can occur. The period when fish are the most sensitive is during the spawning and incubation phase when eggs can become deprived of oxygen from sediments reducing or eliminating water flow through the gravels in redds (Frissell 1993, Bisson et al. 1992, Chapman 1988). Increased amounts of fine sediments in streams have also been found to decrease survival and growth of juvenile salmonids (Suttle et al. 2004, Murphy and Hall 1981, Reeves et al. 1993). Indirect effects to the growth and survival of salmonids can occur when excessive amounts of fine sediments effect the production of macroinvertebrates that fish rely on for food (Kaller and Hartman 2004, Waters 1995).

The Sisters/Whychus Watershed Analysis analyzed sediment in Whychus Creek (USDA Forest Service 1998). Within the Wild and Scenic River boundary bank erosion is minimal and limited to areas of natural channel migration and to short sections where erosion from user trails is affecting the streambanks. As a result, fine sediment in the Wild and Scenic boundary was nearly half the amounts found near Sisters. Generally, turbidity in this reach is low with short events of natural high turbidity from glacial runoff in the late summer. Aquatic macroinvertebrate sampling results for Whychus Creek collected near the gauging station during 1989-1999 (Lovtang and Riehle 2000) showed the macroinvertebrate community was not very diverse but had a good representation of water quality sensitive taxa.

Downstream of the project area and the Wild and Scenic boundary, the percent of the substrate that is fine sediment is thought to be high due to extensive bank erosion. In 1997, up to 13% of the streambanks within the channelized reaches of Whychus Creek were unstable. This value may be higher now due to recent high flow events. At a depositional area on the Camp Polk property, up to 13 feet of erosion was observed during three flood events in the fall of 2007 (Senkier per. comm. 2009). These highly eroding banks can lead to spikes in turbidity levels during high flow events; however, turbidity levels quickly dissipate as flows decrease.

Despite high fine sediment contribution, gravel embeddedness was not found to be high in Whychus Creek during the 1990 stream survey. However, streambed substrate was sampled using pebble count methods during the 1997 stream survey and fine sediment was higher downstream of the project area and the Wild and Scenic River boundary in the reach between Sisters and the Three Sisters Irrigation District diversion, which could cause some gravel embeddedness (USDA Forest Service 2009). Aquatic macroinvertebrate sampling results showed that clean water taxa richness was reduced at the Rd 4606, which is likely a reflection of high water temperatures and fine sediment (Lovtang and Riehle 2000).

Some of the roads and user trails adjacent to or crossing Whychus Creek are most likely to contribute some sediment as do revegetated and compacted dispersed camping areas. These areas exist within the project area and farther upstream but are less prevalent than downstream because of the steep terrain.

The close proximity of Whychus Creek to Sisters and the lack of developed campgrounds have contributed to the creation of user created dispersed campsites along with user created roads, fords and trails. Over time the impacts of focused unmanaged recreational use, such as off-road use and dispersed camping have impaired sensitive streamside riparian habitat. This use has contributed to compacted streamside soils, increased sedimentation, runoff to streams, and the loss of streamside vegetation. Stream crossing and “creek crawling” with vehicles can lead directly to stream pollution, bank sloughing, destruction of trout and salmon habitat, and the spread of invasive plants to downstream areas.

In addition, system roads that were analyzed to be closed under past timber projects were often never physically closed or made hydrologically stable (i.e. removed culverts, installed drainage). The continued use of these unmaintained Forest Service roads keeps them from revegetating and perpetuates any erosion or sediment runoff problems. User created roads have similar problems but they can be worse as they are created by users and are not designed with proper drainage features to withstand precipitation and runoff.

The Forest Service has recently made efforts to reduce some of the sedimentation and riparian plant effects from roads and dispersed camping (USDA Forest Service 2009). The Whychus Creek Riparian Protection Project (2005-2007) reduced user created roads and fords that go through Whychus Creek, side channels and floodplains from the town of Sisters up to North Fork Whychus Creek near the Three Sisters Wilderness boundary, including sites within the project area. Boulders were placed to restrict off road vehicle use and prevent vehicles from driving in the stream. Some dispersed camping areas were closed or pulled back from the edge of Whychus Creek. The intent was to provide a limited number of quality dispersed camping opportunities and a more pleasant non-motorized experience that would protect important fish and riparian habitat along Whychus Creek. A total of 59 sites were protected which resulted in the closure of 1.1 miles of system roads and the closure of an unknown amount of user created roads.

In July 2009, the 59 protected sites on Whychus Creek were surveyed to see if they had been damaged or breached and if there were other sites that were overlooked or had become heavily used recently (Dachtler 2009). The sites were split into lower, middle and upper reaches (Wild and Scenic reach): Mainline footbridge (just above Sisters) to lower end of private land, upper end of private land to the gauging station, and the Wild and Scenic



reach from the gauging station to North Fork Whychus Creek. Nine sites or 15 % of the sites were breached with four of the sites breached in the lowest reach which is closest to the town of Sisters. Three sites were breached in the middle reach and two in the upper reach (Wild and Scenic reach). Seven of the breached sites were at campsites and a single boulder was moved to create vehicle access to a campsite closer to the stream. At the two other breached sites vehicles had driven cross country around boulders to access closed system roads. The gauging station are closures have been repeatedly breeched to reach closed roads.

Environmental Consequences

Analysis Issue: Too much or too little development will affect the Outstandingly Remarkable Fisheries Value.

Measures:

- ✓ *Effects to sensitive species or their habitat*
- ✓ *Acres of riparian habitat restored (restore dispersed campsites)*
- ✓ *Miles of trails reduced*

Alternative 1 - No Action

Activities associated with dispersed recreation (e.g., user created roads and trails, sprawl of dispersed campsites, etc.) are being expanded and developed within the project area. These activities are either directly or indirectly trampling banks and reducing streamside vegetation thus making the banks more susceptible to erosion and increasing the potential for sediment input into streams. Continued or increased unregulated use in these areas could result in additional resource damage.

User created trails often follow the fall line or use steep grades and do not have proper drainage installed (Olive and Marion 2009). Studies have shown that these types of user created trails experience more trail erosion and soil loss than properly designed and maintained trails (Olive and Marion 2009). Impacts from horses or ATVs have been shown to create more erosion and soil loss when compared to hiker only trails (Olive and Marion 2009, Foltz 2006).

This Alternative poses the highest risk to water resources and fish habitat because without management controls pioneering of trails/roads is likely to continue. Potential effects to fish from continued use could be small amounts of fine sediment entering Whychus Creek where user trails near the creek are causing banks to become unvegetated and/or unstable and where runoff from poor drainage on these trails is occurring. However, due to the current condition of the trails, vegetative cover, rainfall rates and soil types along the user trails of Whychus Creek little evidence of erosion and soil loss could be found entering the Creek and potentially impacting fish survival (Dachtler 2010b).

Primarily hikers and lesser numbers of bikers and horseback riders are the current user group for these user trails. Hikers cause less soil loss than horses and ATVs do (Olive and Marion 2009). Increased use of these trails is expected over time as the population of Central Oregon grows and more people discover Whychus Creek. This over time could create more user trails and cause increased amounts of sediments to enter the creek that could have impacts to fish survival.

Alternative 2 - Proposed Action- Direct and Indirect Effects

Due to the nature of this project the only effects to fish would result from trails (developed or already existing user trails) and roads that influence Riparian Habitat Conservation Areas (RHCAs). The only environmental baseline conditions that could be affected by these roads and trails are sediment and streambank condition.

Where user trails have devegetated streambanks or caused bank instability, these trails will be closed, rehabilitated and replanted with native vegetation. Forest Service designed system trails (both new trails or modified user trails) will be designed to reduce erosion and through the use of water bars and trail shaping and location will move water off trails so that erosion to the trail or streambanks does not occur.

Sedimentation and turbidity that is associated with trail runoff will be moved off trails with water bars or other features in the trail design. After leaving the trail water will be filtered through existing forest vegetation, forest litter and duff on the ground. Amounts of fine sediments reaching the stream will be negligible and immeasurable as far as effects to fish because trail design will move water off trails before there is enough water velocity or volume to cause

substantial movement of soils or erosion. Runoff from trails would be filtered through vegetation and forest litter ensuring that very little if any sediment would enter the stream.

Fish in Whychus Creek will not experience sediment or turbidity from this project above already occurring levels. No evidence of erosion, gully formation or soil movement was observed on already existing user trails following significant rain events (Dachtler 2010b). Therefore, no significant erosion, gully formation or soil movement is expected on properly designed trails that would be sloped to shed water off trails, have regularly spaced water bars where needed and use trail alignments that would shed water rather than collect and run water.

Closing roads and duplicate user trails while providing proper drainage on these roads and trails will reduce runoff and sedimentation to Whychus Creek and will have a long term beneficial effect on the stream. A single system trail network will discourage the development of more user trails and if new user trails do get developed it will be easier to close these off and direct people back to an established trail system.

Development of parking areas and the overlook will primarily utilize already disturbed areas that are located well away from the stream and the Riparian Habitat Conservation Areas. No detrimental effects to the stream or fish are expected to occur from these components of the project.

Cumulative Effects

The fisheries cumulative effects analysis area includes all subwatersheds (6th fields) that drain directly into Whychus Creek: Headwaters of Whychus Creek, Upper Whychus Creek, Middle Whychus Creek, and Lower Whychus Creek. The time frame considered from about 5 years ago to 20 years into the future.

The increased management of riparian areas, roads and trails under Alternative 2 would combine with other efforts of fish habitat restoration in the watershed. Effects to the fisheries resource from Alternative 2 would incrementally add to beneficial cumulative effects in the cumulative effects analysis area because of the beneficial effects predicted by the decommissioning of roads, trails, and dispersed campsites. The added protection to water quality, channel condition, and streamflow from the Whychus Portal Project would combine with the positive effects from the on-going restoration efforts in the Whychus watershed and the protective standards and guidelines of the Whychus Wild and Scenic River Plan. No negative effects greater than under Alternative 1 are predicted from Alternative 2; therefore, the Whychus Portal Project would not incrementally add to any negative cumulative effects.

Alternative 3 –Less Development, Maximize Primitive Character- - Direct and Indirect Effects

Effects of Alternative 3 to fish will be similar to those discussed under Alternative 2 with road closures and creation of a single system trail in several areas.

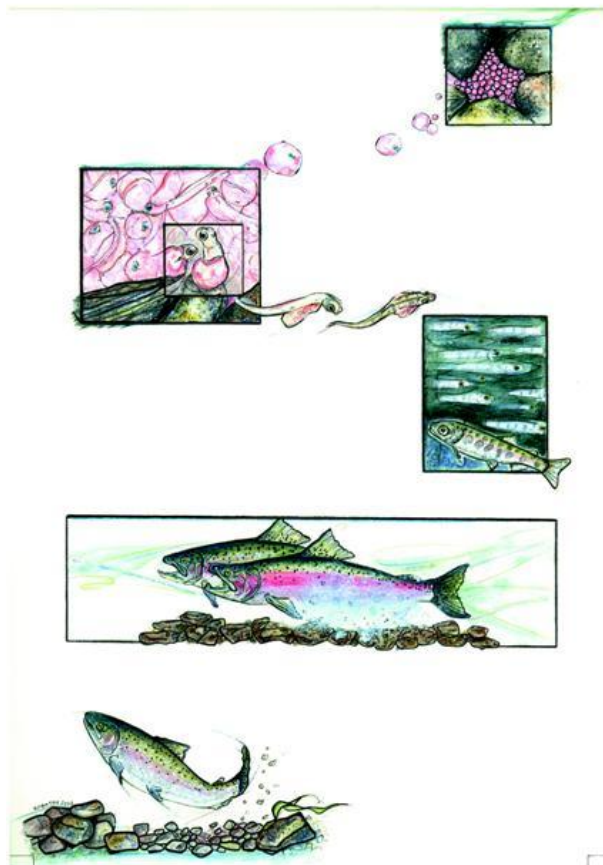
However leaving more areas open for self discovery where use is already occurring and closing some already established user trails may invite people to pioneer new routes around closures or in areas where no trails currently exist. These new user trails will not be engineered to shed

water with their alignment or with regularly spaced water bars. The creation of new user trails or the continued use of already established ones could create more devegetation, streambank instability and fine sediments. Also the magnitude of these effects will depend on the location and amount of use these trails receive in the future which is currently unknown. It is possible but unknown at this time if trails pioneered in the future will lead to unacceptable erosion or sedimentation effects above levels that are currently occurring in the watershed.

Cumulative Effects

The scope and timeframe for this cumulative effects analysis is the same as in Alternative 2.

The increased management of riparian areas, roads and trails under Alternative 3 would combine with other efforts of fish habitat restoration in the watershed. Beneficial effects to the fisheries resource from Alternative 3 would be slightly less than Alternative 2 because of the greater potential for more user trail creation. No negative effects greater than under Alternative 1 are predicted from Alternative 3; therefore, the Whychus Portal Project would not incrementally add to any negative cumulative effects.



Summary of Evaluation/Assessment Results

Consultation under the Endangered Species Act (ESA) on the effects of this project on listed fish was conducted under the Joint Aquatic and Terrestrial Programmatic Biological Assessment For Federal Lands within the Deschutes and John Day river Basin's Administered by the Deschutes and Ochoco National Forests. Notification of this project and effects determinations will be sent to the USFWS and NOAA Fisheries. By following the Project Design Criteria in the Programmatic Biological Assessment, and complying with the Terms and Conditions issued by the agencies, the following effects determinations were reached:

No effect to the Interior Columbia River redband trout, Columbia River bull trout or Mid Columbia River steelhead and No Adverse Effects to Chinook EFH are expected to occur. Most user trails in the project area are currently not contributing fine sediments to the stream and are not expected to once converted to a Forest Service trail system. Those user trails that are contributing fine sediments or causing bank instability will be closed, rehabilitated and replanted under the proposed action. Closure and rehabilitation of Forest Service system roads or user created roads will reduce or eliminate any fine sediments that may be entering Whychus Creek as a result of poor drainage associated with these roads. These actions will be beneficial to fish populations, fish habitat, and aquatic biota in Whychus Creek.

- Bull trout- **No effect**
- Chinook salmon Essential Fish Habitat- **No Adverse Effects**
- Mid Columbia steelhead trout- **No effect**

The following effects determinations were made in this Biological Evaluation for sensitive fish species in Whychus Creek.

- Redband Trout- **No effect**

Scenic Resources



The Three Sisters are the headwaters of Whychus Creek

The following analysis is a summary of this report in the Project File (Gyorgyfalvy, 2011). Portions of this chapter are from the Whychus Creek Wild and Scenic River Management Plan (USFS 2010)

Desired Future Condition

The wild, unmodified scenery of the corridor is recognized as a unique and valuable attribute. The creek provides a rich variety of scenic experiences. The headwaters of Whychus Creek and the glaciers on the Three Sisters mountains, remain an iconic symbol of Central Oregon. The natural appearing landscape has little evidence of past human activities. The canyon walls provide a sense of seclusion.

Close views are dominated by the interaction of rock, water, vegetation, including large old growth trees, down wood, riparian hardwoods and other native vegetation.

The natural fire ecology of the area forests is a part of the scene. More distant views are dominated by burned and fire maintained forests and mountain vistas. Facilities for the purpose of protecting river values are rustic in character and blend with the natural surroundings.

Consistent Uses: The following activities proposed by the project are examples of uses that are consistent with protection of the Scenery Outstandingly Remarkable Resource Value:

- Natural appearing parking areas along the road using native material and plantings.
- Installation of educational or directional signs.

Conflicting Uses: The Scenery Outstandingly Remarkable Resource Value could be adversely affected by these activities which are occurring or could occur in the project area:

- Unmanaged recreational use causing devegetation or multiple trails or roads.
- Uninformed, unskilled, or careless practices while camping (in camp location, excessive size and number of campfire rings, improper sanitation, illegal firewood cutting, leaving trash, excessive noise, and vandalism).
- Uninformed, unskilled, or careless practices while hiking or parking (parking in vegetation, improper sanitation, leaving trash, creating user trails, and vandalism).
- Illegal or undesirable behaviors such as shooting trees, graffiti, leaving trash, cutting live or dead standing trees outside firewood cutting areas, or vandalism.
- Too many signs, which detract from the scenic quality and the near natural or natural setting.

Existing Condition



Whychus Creek scenery

Analysis Methods

Methodology used for analyzing impacts to scenic resources is the Scenery Management System which uses “Landscape Aesthetics: A Handbook for Scenery Management.” Issued in 1995, this new handbook replaces “Agriculture Handbook 462 – The Visual Management System” which was issued in 1974. While many of the basic inventory elements of the Visual Management System are retained, the Scenery Management System incorporates both the natural and human processes into the ideas of managing for ecosystems.

Scenic Resources

The scenic resources of the Whychus Portal Project are located approximately four miles south of the City of Sisters and along the lower section of the Whychus Wild and Scenic River corridor and adjoining lands. Characterized by diverse landforms such as waterfalls and dramatic cliffs creating a deep gorge full of cascading water, there are spectacular scenic views to an action-packed landscape full of diverse geologic features which create a strong draw for visitors wanting to recreate in a wilderness-like setting accessed by car yet undisturbed enough to allow for exploration and discovery without too much development, motorized distraction, or noise.

The scenic resources of Whychus Creek were evaluated as having Outstandingly Remarkable Value. As a result of this Outstandingly Remarkable Value, the Whychus Portal project area is within a section that has been designated as Scenic within the Whychus Creek Wild and Scenic River corridor. Mostly because of the scenic value of the area’s unique geological and hydrological features, the Scenic Views Management Area is classified as High Scenic Integrity (SV-1 Foreground) within the Scenery Management System and as Retention in the older Visual Quality System. These Management Areas are viewed as an immediate foreground landscape (0-300 feet) as well as foreground landscape (300 to ¼ mile).

The most meaningful and desired vistas for visitors from within the project area are to glaciers on mountain peaks of the adjacent Three Sisters Wilderness Area. These glaciers and snow are the source and headwaters of flows in Whychus Creek. Cascading waters and Three Sisters mountain peaks are often the subject of photographs capturing the essence of Central Oregon.

The northwest boundary of the project area begins just below the Whychus Creek Wild and Scenic River corridor. Evidence of the area’s long history of agriculture use can be seen in the existing and past irrigation structures and ditches near the lower parking area. Signs of intensive recreation use are visible through this area that is located about four miles to the southwest of the City of Sisters. There are numerous detractors that negatively impact the scenic integrity and visual quality of the area such as user roads and dispersed camping areas full of damaged trees, garbage, human waste, graffiti, erosion, and loss of vegetation.

Scenic quality has also been impacted in the uplands of the project area by past forest management practices of large tree removal, clearcutting, and leaving behind stumps and brush fields. There are also young black barked trees and ponderosa pine forests with low green canopies with some older pine with golden reddish bark near the creek.

A dramatic descent from a dry conifer forest plateau into a deep canyon-like gorge introduces you to the river corridor. Sensing a gradual shift in temperature and moisture, the scenery becomes towering cliffs and large boulders, more hardwoods and seasonal color changes in plant material, and cascading water brought to life by being channeled. Most views throughout the canyon are to an oasis of changing plant patterns framed by surrounding cliffs, lava outcrops, and endless boulders. Striking vertical elements sprinkled throughout the areas along the creek are remnant old growth ponderosa pine and Douglas-fir.

Further upstream, sculpted basaltic outcroppings suddenly become more common. Signs of water at work are visible everywhere in the rock pillars, water carved caves, textured canyon walls, and polished potholes when seen from the banks of the creek. Finer details within and along the creek are revealed in gravel that comes in every size, shape, and color imaginable.

Environmental Consequences

Analysis Issue: Too much or too little development will affect the Outstandingly Remarkable Scenery.

Measures:

- ✓ *Acres of riparian habitat restored (restore dispersed campsites)*
- ✓ *Miles of roads and trails restored*
- ✓ *Effects to immediate foreground views (0-300 feet)*
- ✓ *Effects to foreground landscapes (300 feet to ¼ mile)*

Alternative 1 - No action

The effects to the Scenic Views Management Areas within immediate foreground landscapes (0 to 300 feet) would most likely be negatively impacts caused by high intensity use that is currently unmanaged and resulting in resource damage such as soil and vegetation loss, visible signs of recreation use such as graffiti and garbage, and numerous areas that should appear natural and without development now appear as developed user trails, camping sites, and parking areas. These currently do not meet the Scenic Views Management Area Standards and Guidelines for the Scenery Management System classification of High Scenic Integrity (Retention).



Dumpsite near proposed overlook on Rd 442

The effects to Scenic Views Management Areas within foreground landscapes (300 feet to ¼ mile) would also be negatively impacts in the future caused by continued degradation of high intensity use areas within immediate foreground landscape areas. There would also be the possibility of unmanaged use spreading to currently untouched areas and continued degradation would become more visible from other locations. If the high intensity use were allowed to continue and to affect other areas, the possibility exists that Scenic Views Management Area Standards and Guidelines for the Scenery Management System classification of High Scenic Integrity (Retention) would not be met in the future.

Alternative 2 - Proposed Action- Direct and Indirect Effects

The direct effects to Scenic Views Management Areas within immediate foreground landscapes (0 to 300 feet) would most likely be positive because of improvements to access and management of areas experiencing increased recreation use. Areas that should appear as natural settings would have unnecessary roads and user trails removed. Certain unneeded system roads would be closed and certain user trails will be recontoured and revegetated to reduce erosion and restore wildlife habitat. A sustainable system hiking trail starting at the terminus of the river corridor would be designed and constructed. Current mountain bike connections would be maintained and new single track trail construction would be allowed in specific locations.



Illegal tree cutting and devegetation at dispersed camp site near the gauging station

Another improvement to the Scenic Views Management Areas based on the proposed actions would be revegetation and restoration of native vegetation areas that are currently degraded. Managed use of the area will allow improved monitoring of illegal behavior currently facilitated by motorized access. Parking areas would be primitive and reduced to designated day-use only locations.

A new accessible trail and overlook viewpoint area would give visitors safe and easy access to desired locations and allow vegetation to recover. The new overlook would be sited and setback from the cliff edge so it would be less visible

from below. It would use native materials to blend with the surrounding landscape and would meet Scenic Views standards and guidelines.

The elimination of motorized dispersed camping on the east side of Whychus Creek would improve the natural appearance of the area and meet Scenic Views standards and guidelines in immediate foreground landscapes. By changing access and reducing the size of the camping area and number of designated sites at the end of Road 900, Scenic Views would be enhanced with the reduction in vandalism, erosion, sanitation issues, garbage, dumping, and would allow restoration to protect a prehistoric site.

The Scenic Views Management Areas within foreground landscapes (300 feet to ¼ mile) would most likely be positively affected by improvements to access and management of increased

recreation use. Continued degradation to high intensity use areas within immediate foreground landscape areas would be stopped and there would be less of a possibility of unmanaged use spreading to currently untouched areas. Without a situation of spreading degradation from unmanaged use resulting in user created access, Scenic Views Management Area Standards and Guidelines for the Scenery Management System classification of High Scenic Integrity (Retention) would be met in the future.

Alternative 3 - Less Development, Maximize Primitive Character- - Direct and Indirect Effects

The direct effects to Scenic Views Management Areas within immediate foreground landscapes (0 to 300 feet) are similar to Alternative 2. Without meeting current demands and needs for connections or loops, dead-end trails would easily become new connections or loops for users. The continuing and current problem has been user created trails that are often not designed or located to consider slope, grade, drainage, erosion, and scenic quality. There exists the likelihood that new user trails would continue to be formed. The illegally constructed trail which connects Road 900 to the area downstream currently receives frequent local use. It is highly likely that even with planned obliteration of this trail in this alternative, the area will continue to see use with additional impacts to Scenic Views in the immediate foreground landscape.

Although this alternative proposes actions that would enhance the primitive character of the area and improve Scenic Views with less development, unmanaged use would continue to degrade the area's scenic quality. The recreation and scenic views issues to be resolved are improving access and opportunities for discovery without sacrificing resources by allowing continued damage from increasing vandalism and illegal behaviors to occur. If the high intensity use were allowed to continue and to affect other areas, the possibility exists that Scenic Views Management Area Standards and Guidelines for the Scenery Management System classification of High Scenic Integrity (Retention) would not be met in the future.

Cumulative Effects- Alternatives 2 and 3

Over the past 100 years, management activities which have negatively impacted Scenic Resources in the cumulative effects analysis area (Whychus Watershed) include timber harvest, livestock grazing, fire suppression, wildfires, unmanaged recreation, stream diversion, stream restoration, road closures, and trail and road construction. In general, these actions have caused a decline in scenic quality and not met Scenic Views Management Areas Standards and Guidelines in some areas due to heavy ground disturbance, devegetation, or removal of important elements for scenic quality such as large old growth trees. Fire suppression has allowed forests to increase in density, become diseased with mistletoe or insect outbreaks, and obscure or alter Scenic Views in immediate foreground and foreground landscapes. Expansive areas of lodgepole pine trees are dead or dying along Road 16 as you travel toward Three Creeks Lake. A large wildfire in Park Meadow created an opening in the forest canopy that is entirely visible from all of Central Oregon.

Recent streamside restoration activities by the Forest Service within the cumulative effects analysis area have improved scenic quality by reducing riparian trampling and devegetation, defining access and closing stream fords at 59 sites along Whychus Creek. Boulders have been

used and appear natural in some locations. In other areas, they do not appear natural when placed uniformly without being semi-buried on the landscape due to cultural site concerns.

For the past 15 years, vegetation management has occurred infrequently in the cumulative effects analysis area. Foreseeable future actions in the next 5 years that may affect scenic quality include: 1) Sisters Area Fuels Reduction Project (SAFR) approved in 2009 and in progress and the Popper Vegetation Management Project, currently being planned which would result in short-term effects on Scenic Views from cut trees, ground disturbance, smoke, blackened trees and the visible results that occurs 1 to three years after ground burning. Long-term scenic quality would improve when open park-like stands and more natural historic stand conditions are restored; 2) Invasive Plant Control on public lands through the Deschutes/Ochoco Invasive Plant program, which would benefit scenic quality by reducing populations of invasive weeds along roads and waterways and allowing re-establishment of native wildflowers and grasses.

Increased management controls in riparian areas, reducing densities of unneeded and user roads and trails, along with revegetation under Alternatives 2 and 3 would combine with other efforts of streamside and forest restoration in the watershed to cumulatively improve scenic quality by restoring habitat and reducing impacts from unmanaged recreation.



Sandy Melchiori paints a view of Whychus Creek



Cultural Resources

The following analysis is a summary of this report in the Project File (Zettel, 2011). Portions of this chapter are from the Whychus Creek Wild and Scenic River Management Plan (USFS 2010)

Desired Future Condition – Prehistory and Traditional Use

As an ancient travel route to the mountains, the area around Whychus Creek continues to protect an important record of how people in the past used resources and the landscape. The non-renewable and generally fragile nature of prehistoric resources is recognized and they are managed accordingly for the greatest scientific and public good in consultation with the Confederated Tribes of Warm Springs.

The relationship between the Confederated Tribes of Warm Springs, the Forest Service, the community, and visitors is recognized and nurtured as an opportunity for cross cultural learning, respect, and understanding. The treaty protected resources of the corridor are protected and enhanced.

The location and extent of cultural resources is known and all have been evaluated for eligibility to the National Register of Historic Places. Outstanding heritage resources within the Wild and Scenic River area are nominated for listing on the National Register. A management plan for the heritage resources of the area identifies opportunities for education, research, and recreation access as well as priority sites for protection measures and monitoring. Locations with tribal interest and concern are identified and appropriate access, interpretation, and use is determined in consultation with tribal governments and groups.

Consistent Uses: The following activities proposed by the project are examples of uses that are consistent with protection of the Cultural History and Traditional Use Outstandingly Remarkable Resource Values:

- Low impact recreation (see Recreation section for more information).
- Education and interpretation of cultural and traditional history guided by the Confederated Tribes of Warm Springs

Conflicting Uses: The Cultural History and Traditional Use Outstandingly Remarkable Resource Value could be adversely affected by these activities which are occurring or could occur in the project area:

- Activities which cause damage, looting, or erosion to cultural sites, including prehistoric sites, culturally significant sites such as Whychus House Cave, or areas important for culturally significant foods such as wet meadows.

Desired Future Condition – Cultural History

The role of Whychus Creek in the Sisters area's history is recognized and studied. From railroad engineers exploring the area in the 1850s to the establishment of Sisters in the early 1900's, the story of settlement and resource use along the creek is the story of the exploration of the west. It is shared in educational and interpretive materials. The non-renewable and generally fragile



nature of historic resources is recognized and they are managed accordingly for the greatest scientific and public good.

Sisters Rodeo Association 1946- Courtesy of Georgia Gallagher

Consistent Uses: The following activities proposed by the project are examples of uses that are consistent with protection of the Significant Cultural History Resource Value:

- Low impact recreation (see Recreation section for more information).
- Protection/Restoration of the area's landscape character.
- Interpretation of the area's history.

Conflicting Uses: The significant Cultural History Resource Value could be adversely affected by these activities which are occurring or could occur in the project area:

- Activities which change the area's landscape character.
- Vandalism or careless destruction of fragile historic sites.

Existing Condition

The Whychus Creek corridor has a long history of use by Native Americans. There are twenty-five known locations of prehistoric resources within the Wild and Scenic River corridor. The high density of known prehistoric sites and the diversity of projectile point types indicate a regular recurring use of this creek as a travel corridor to and from the obsidian sources in the High Cascades in the Three Sisters area. As such, this drainage provides an important piece of the over-all picture of how people in past times utilized both resources and the landscape from year to year.

Very little in depth analysis has occurred on the prehistoric resources from this area. A few projectile points have been analyzed for obsidian sourcing and hydration. Additional research is possible to gain a better understanding of when past peoples used the Whychus Creek corridor and what activities they were engaged in.

Heritage resource inventories have surveyed approximately one-third to one-half of the Wild and Scenic River corridor, so undiscovered sites are highly likely to occur. Six prehistoric sites in

the corridor have been determined as eligible for the National Register of Historic Places, while another nineteen have not been evaluated. There has been no subsurface data from controlled excavations on any of the sites.

The Whychus House Cave site on Whychus Creek is of cultural significance to the Confederated Tribes of the Warm Springs Reservation. In the past 10 years the cave has been repeatedly vandalized with graffiti, garbage, and by people breeching road closures to access the cave for parties. Increasing use by hikers, campers, rock climbers, and parties is exposing the site to more vandalism. Climbers are leaving visible chalk trails in the cave. Access to the site has been reduced by a road closure and volunteer river stewards have been monitoring and cleaning up garbage at the cave for the past year. Graffiti was removed by powerwashing with water in the summer of 2009, however new graffiti appeared within a month.



Whychus House Cave graffiti

Cultural prehistoric resources are being affected by lack of monitoring and management controls. Two sites along the creek are experiencing erosion through the site area. One is getting runoff from an adjacent road that is creating an erosional channel through the site to Whychus Creek. The other site is below a plantation that was planted 20-30 years ago. Water from the plantation is eroding the site.

The need for coordination and consultation with the Confederated Tribes of Warm Springs continues and may increase as use in the area grows.

Environmental Consequences

Analysis Issue: Too much or too little development will affect the Outstandingly Remarkable Prehistoric and Traditional Use Values and the Significant Cultural History.

Measures:

- ✓ # Sites affected by unmanaged use
- ✓ # Sites affected by project activities
- ✓ Effects to Whychus House Cave
- ✓ Effects to Treaty Resources

Alternative 1 - No Action

Prehistoric Resources

Under the no action alternative, no project impacts would occur but ongoing impacts from dispersed camping and user trails would continue. The recent closure of Whychus House Cave to camping, campfires, and rock climbing should reduce damage. However, the user trails to the Whychus House Cave prehistoric rock shelter would continue to be easily accessed and the shelter would continue to receive impacts from this use. The road closures to the site have been breeched four times since road closures in 2005. The site would remain at risk for looting and un-authorized excavation. Access to the rock shelter would remain the same with the road to the shelter being blocked but occasionally breached and used.

The lithic scatter site near Road 900 would continue to be impacted from dispersed camping through devegetation, erosion, collection, and inadvertent artifact breakage from vehicles and foot traffic. User created trails through two lithic scatter sites would continue to be used through the site areas with little direct impact but the potential for artifact movement through erosion on un-managed trails. Four sites that intersect existing open roads would continue to have artifact breakage and redistribution from road use and maintenance.

This alternative is neutral in that it would not have any direct effects on prehistoric resources. However, ongoing impacts would not be mitigated and existing use would continue to degrade the resource over time.

Traditional Use

Vandalism and illegal behaviors facilitated by easy motorized access would continue to affect treaty resources and be difficult to detect. Treaty resources such as water and fish would continue to be impacted by user trails and dispersed camping which cause erosion, and devegetate riparian areas. Wildlife which are important to the Tribes would continue to be disturbed by motorized access and multiple trails, and vandalism like shooting trees often in sensitive riparian areas used by wildlife for shelter.

This alternative is neutral in that it would not have any direct effects on traditional use resources. However, ongoing impacts would not be mitigated and existing use would continue to degrade the resource over time.

Cultural History

No Cultural History sites are known to occur in the project area. However the landscape character is negatively affected by unmanaged use.

Alternative 2 - Proposed Action- Direct and Indirect Effects

Prehistoric Resources

Under the proposed action, the trail below the Whychus House Cave site would be restored and closed with a new trail segment passing above the site. This alignment obscures the site from the trail and would reduce the number of casual visitors. The shelter has been closed to camping, campfires, and climbing with a closure order. The road above Whychus House Cave would be

decommissioned and replanted, greatly reducing the opportunity to breach road closures to access the cave. The nearest vehicle access would be further away on Rd 16 or at the Rd 390 parking area, making it less attractive to camp or party at the cave. By moving parking access farther away, reducing road access and taking the trail away from Whychus House cave the site would be better protected from vandalism, casual party use, and camping.

The prehistoric site at the end of the Road 900 would be mostly revegetated, removing it from the impacts of uncontrolled dispersed camping and illegal activities. The camp site would be hike in only and is likely to be less used and used by smaller groups at any one time. There would be some minor short term impacts from the rehab and revegetation that may cause some artifact movement and visibility in the site but long term it would result in better site stability, less erosion, and less visibility to surface collectors.

Two sites that currently intersect user created trails would be slightly effected as these become system trails that may receive minor impacts from trail maintenance over the years but it would greatly reduce the risk of erosion through the site areas and proliferation of user trails through the sites. Four sites would be better protected through reduced access as roads that lead to the sites would be closed or removed. Three of these sites would need to have the site protected or avoided through avoidance or modification of the road rehabilitation but all would be less accessible and reduce ongoing impacts after implementation. Increasing the presence of low impact recreationists (hikers) can help in discouraging vandalism and detecting illegal behaviors.

This alternative would better protect the prehistoric resources in the Whychus Wild and Scenic River by removing or reducing ongoing impacts from road use and maintenance at four sites in road closures or removals, better protecting the Whychus House Cave rock shelter site by making it less visible and a longer hike to get to it, greatly reducing impacts to one site in a dispersed camp, and reducing erosion risk to two sites where existing user trails through the sites would become system trails that would receive regular maintenance to reduce erosion potential.

Traditional Use

Reducing motorized access would reduce vandalism and illegal behaviors which affect treaty resources. Defining trails and reducing impacts from user trails and dispersed camping would benefit treaty protected resources of the creek such as water and fish by reducing erosion, reducing disturbance to wildlife by eliminating motorized access, multiple trails, and vandalism like shooting trees. Revegetating roadbeds and by pulling trails back from riparian areas in some places improves wildlife habitat. Increasing the presence of low impact recreationists (hikers) can help in discouraging vandalism and detecting illegal behaviors.

Overall, this alternative improves the protection of the traditional uses in the Whychus Wild and Scenic River by improving water quality by rehabilitating streamside user trails, reducing motorized intrusion by closing and removing some roads and better protecting prehistoric resources in the corridor.

Cultural History

No Cultural History sites are known to occur in the project area. However the landscape character would be improved by access management and restoration.

Alternative 3 - Less Development, Maximize Primitive Character- Direct and Indirect Effects

Under this alternative the effects are the similar to Alternative 2. However the dead-end spur trail which ends shortly above the Whychus House Cave may not be as effective at diverting use from the cave as a trail which continues past the cave area to provide other sights. People may be more likely to explore and find the cave when they reach the trails end after 1 mile of hiking. There exists the likelihood that more new user trails would continue to be formed. One site that currently intersects user created trails would have the trail removed and rehabilitated instead of converting it to a system trail. This should remove ongoing impacts to the site and reduce the erosion risk that could be caused by an unmanaged user trail. One rockshelter that is a potential site would have a small parking area created in its vicinity but as it is not visible from the parking area it should not be impacted.

This alternative also improves the protection of the prehistoric resources in the Whychus Wild and Scenic River by removing or reducing ongoing direct impacts from road use and maintenance at four sites in road closures or removals, better protecting the Whychus House Cave rockshelter site by making it less visible and a longer hike to get to it, greatly reducing impacts to one site in a dispersed camp, and reducing erosion risk to two sites where existing user trails through the sites would become system trails that would receive regular maintenance to reduce erosion potential or would be closed and rehabed. However, the cave may be more vulnerable to discovery over time as people explore around the end of the trail.

Cultural History

No Cultural History sites are known to occur in the project area. However the landscape character would be improved by access management and restoration.

Cumulative Effects- Overview

Past management which has affected prehistoric resources in the cumulative effects analysis area (the Whychus watershed) over the past 100 years includes: timber harvest, wildfires, unmanaged recreation, looting of cultural sites, and trail and road construction. In general, these actions damaged prehistoric resources by affecting site integrity with heavy ground disturbance, when artifacts were removed, or when sites were defaced with graffiti.

In addition, Treaty protected resources such as vegetation, wildlife, fish, and water were damaged when activities caused heavy ground disturbance, devegetation, or removed important resources such as large old growth trees or when fish barriers or water diversions affected fish populations. Fire suppression has caused forests to become denser and sometimes diseased with mistletoe or insects outbreaks, affecting forest health and wildlife habitats for important game such as deer.

Recent Forest Service streamside restoration activities within the cumulative effects analysis area have protected prehistoric resources by avoidance and reducing erosion to sites by reducing riparian trampling and devegetation, defining access, and closing stream fords at 59 sites along Whychus Creek between 2005-2007. Boulders in some areas were not buried due to cultural site concerns. Monitoring of the project showed that by 2009, 15% or 9 sites were breeched. Four of

the breeched sites were those closest to town and included closures to the Whychus House Cave and Rd 900 site.

Little vegetation management has occurred in the cumulative effects analysis area in the past 15 years. Foreseeable future actions in the next 5 years or are in progress, require mitigations such as avoidance to protect prehistoric resources including: 1) Sisters Area Fuels Reduction Project (SAFR) approved in 2009 and in progress and the Popper Vegetation Management Project, currently being planned 2) Invasive Plant Control on public lands through the Deschutes/Ochoco Invasive Plant program which should benefit traditional use resources by reducing large populations of invasive weeds along roads and waterways and allowing reestablishment of native wildflowers, shrubs, and grasses, many of which are plants of cultural significance. As population growth and use increases traditional use resources may experience more vandalism or inadvertent damage.

Downstream watershed restoration efforts such as the Three Sisters Irrigation Dam project which would restore fish passage and improve water flows and the Camp Polk Meadow Restoration combined with concerted efforts to improve flows in Whychus Creek would aid in the recovery of anadromous fish such as salmon and steelhead which are so important to the Tribes.

Cumulative Effects Alternative 2 - Proposed Action

Overall, this alternative would improve the condition of both prehistoric resources and traditional uses in the project area and vicinity. Eight of the ten recorded sites that intersect the project activities would be better protected through project implementation. One of these eight sites would need to have a small amount of disturbance to achieve better protection long term. There is a need to de-compact the soils and plant vegetation to reduce visibility of artifacts and reduce erosion to the site. Identified traditional use resources (water quality and one prehistoric site), would be better protected through decreased soil erosion into the creek and better protection of the prehistoric site.

Increased management controls in riparian areas, roads and trails, and reduced access under Alternative 2 would combine with other efforts of streamside and forest restoration in the watershed to cumulatively protect prehistoric and traditional use resources and reducing impacts from unmanaged recreation.

With the above design criteria and monitoring implemented, there would be minor direct effects to one site with beneficial long term effects to and minor cumulative effects would occur. At five sites, access would be reduced and rehabilitation would occur that would reduce ongoing erosion and use impacts. At the Whychus House Cave prehistoric rock shelter it would have access further removed and it may reduce vandalism and casual visits to the site. The provisions required by the Whychus Creek Wild and Scenic River Management Plan institute a closure at Whychus House Cave which does not allow camping, rock climbing, and fires and this would prevent or reduce further damages from these activities. Overall, this alternative would reduce ongoing effects at 6 sites and reduce the potential erosion effects at 2 others. One site would have minor cumulative effects to implement protective measures but overall the alternative would reduce ongoing cumulative effects at that site and 7 others.

Cumulative Effects Alternative 3- Less Development, Maximize Primitive Character

Increased management controls in riparian areas, roads and trails, and increased monitoring under Alternative 3 would combine with other efforts of streamside and forest restoration in the watershed to cumulatively protect prehistoric and traditional use resources and reducing impacts from unmanaged recreation.

With the above design criteria and monitoring implemented, there would be minor direct effects to one site with beneficial long term effects to and minor cumulative effects would occur from surface disturbance to rehab the site causing some artifact movement and exposure. Long term, the site would be better protected by being revegetated to reduce ongoing erosion and reduce artifact visibility. At five sites, access would be reduced and rehabilitation would occur that would reduce ongoing erosion and use impacts. At the Whychus House Cave prehistoric rock shelter it would have access further removed and it may reduce vandalism and casual visits to the site. The provisions required by the Whychus Creek Wild and Scenic River Management Plan institute a closure at Whychus House Cave which does not allow camping, rock climbing, and fires and this would prevent or reduce further damages from these activities. Like Alternative 2, overall, this alternative would reduce ongoing effects at 6 sites and reduce the potential erosion effects at 2 others. One site would have minor cumulative effects to implement protective measures but overall the alternative would reduce ongoing cumulative effects at that site and 7 others.

Wildlife



A Biological Evaluation (BE) was completed describing the effects to threatened, endangered and sensitive (TES) fauna species and a Wildlife Report was completed describing the impacts to management indicator species (MIS) and land birds associated with the Whychus Portal Project Area on the Sisters Ranger District. The following analysis is a summary of this report in the Project File (Gregg, 2010).

The Whychus Portal Project area supports a variety of wildlife. In the Whychus Creek Wild and Scenic River Resource Assessment (USFS 2007), wildlife populations and habitat in the Whychus Creek Wild and Scenic River corridor were evaluated as Significant, but not as an Outstandingly Remarkable Value.

This is because the wildlife found here are typical of faunal species found within other river systems in Central Oregon. The desired future condition for wildlife in the Whychus Creek corridor is that this diversity is recognized and managed as part of a healthy riverine ecosystem and that the need for habitat and security for common species is recognized. The Whychus Creek Wild and Scenic River Management Plan addresses maintaining refugia and protecting wildlife dispersal. The Confederated Tribes of Warm Springs also expressed their interest in wildlife as treaty resources in the area, especially with respect to migratory corridors for mule deer in transition to summer range.

Wildlife Habitat and Trail Planning

The Whychus Creek Wild and Scenic River Management Plan introduced new standards and guidelines to protect wildlife habitat in the corridor. These included: maximizing undisturbed areas that provide or enhance wildlife refugia, minimizing impacts to Riparian Habitat Conservation Areas and Riparian Reserves and avoiding trail development in areas which receive little use and function as refugia (WWSR-W-1). Where trails were needed for resource protection they were limited to one side of the river with the exception of the Project area. Trail development was allowed in the project area because although the Three Creeks/Metolius/Windigo Connector trail is on one side of the creek, it is on an existing road on the ridge and is generally out of sight of the creek.

In a field assessment of the existing user trails and trail development feasibility, Schubert (2009) found that the section of the creek which comprises the project area (from the gauging station to the Metolius/Windigo Trail crossing) receives significant use, much of it destructive, and recommended active management. Schubert outlined two options: 1) Area closures and dedicating significant enforcement resources to try to keep people out or 2) Improving facilities to invite more low impact recreationists to use the area, to displace the abusers. More enforcement was recommended regardless.

The Whychus Wild and Scenic River plan took this assessment into account when it called for a gradient of management controls along the creek, with more development in this lower section and less above as it approached the wilderness. The best section of the creek to manage as a wildlife refugia without any trails was identified by Schubert (2009) and Schubert identified the

river segment above the project area from the Metolius-Windigo crossing to 1514 Road Bridge (approx. 5 miles) as the least visited of any segment along the Scenic Segment of Whychus Creek with no user trails along the creek, and evaluated it as “wilder” than some segments of the upper tributaries of the Wild Segment. As the creek approaches the Road 1514 bridge there are numerous dispersed campsites on both sides of the creek and thus the wildness decreases markedly in the last half mile. He identified this segment as the best area to protect lower elevation wildlife habitat saying it’s remoteness would be enhanced further by additional road closures. Other areas of the creek such as unroaded canyon slopes also are recognized as wildlife refugia important to maintain.

The Whychus Creek Wild and Scenic River Management Plan also called for reducing road densities and prioritizing road closures in proximity to trails to maximize effectiveness of wildlife refugia. Decommissioned roads and dispersed campsites identified for closure and restoration are to be revegetated to speed the development of new habitat.

The plan also called for managing the lower portion of the Scenic river corridor, from the gauging station to Pole Creek Swamp as deer winter range/transition range because it is biological winter range and transition range for mule deer. This means maintaining thermal cover, creating favorable forage conditions, and leaving untreated islands during fuels reduction projects as well as additional standards regarding unit shapes.

This project was designed to meet these protective standards.

Fragmentation of Wildlife Habitat by Roads and Trails

There is a body of research investigating the effect of roads on wildlife habitat which is discussed below. There is less known about how smaller linear features such as trails affect wildlife and their habitat.

Roads

Roads contribute to forest fragmentation by dissecting large patches into smaller patches. This results in decreased interior forest habitat and increased edge habitat (Askins et al. 1987, Small and Hunter 1988, Schonewald-Cox and Buechner 1992, and Askins 1994, in Joslin and Youmans 1999, Reed et al. 1996). Habitat fragmentation from corridors (roads) reduces a species capacity by disrupting continuous forest cover and reducing space required by interior species. Patch size and distribution can determine the probability that a patch may be occupied (Laan and Verboom 1990, Fahrig 1998 in Joslin and Youmans 1999). The degree of patch isolation is negatively associated with patch occupancy (Sjogren 1991, Vos and Stumpel 1995, and Branch et al. 1996 in Joslin and Youmans 1999). For example, ditches meant to drain forest areas between frog ponds isolated them even though the distance between was not altered (Sjogren-Gulve and Ray 1996 in Joslin and Youmans 1999). Rich et al. (1994 in Joslin and Youmans 1999) found roads measuring 16 meters wide had an effect on songbirds. Hutto (1995) found that some songbirds may occur less commonly in smaller forest patches than in larger forest patches. Hickman (1990 in Joslin and Youmans 1999) found similar results as Hutto but on trails 2-3 meters wide.

Riparian areas are usually areas of high diversity. Fragmentation of riparian habitats by roads may create greater impacts on the landscape. Patch size is reduced and roads may separate important habitat associations between the uplands and riparian areas. Connected riparian and

upland habitats are more effective in meeting habitat needs for a large variety of songbirds (Hutto 1995).

Road edges may also serve as ecological traps (Andrews 1990 in Ouren et al. 2007). These areas may have the necessary resources for species occupation but impose high mortality rates. For example, some bird species are attracted to roadsides due to the lush vegetation for nesting and foraging (Clark and Karr 1979 in Ouren et al. 2007). Although the area contains suitable habitat, these individuals are at increased risk of mortality from being hit by vehicles (Mumme et al. 2000 in Ouren et al. 2007). In addition, bird nests in these areas are susceptible to increased mortality due to high predation rates (Yahner et al. 1989 in Ouren et al. 2007).

Roads may act as barriers for some species while aiding in the dispersal of other native and non-native species. For example, the construction of the United States interstate highway system created avenues for dispersal of grassland species due to the adjacent dense grass habitat (Forman et al. 2003). Roads can also promote increases in wildlife populations unlikely to be common in an area which may exert additional competitive pressure on native species (Ouren et al. 2007). Rich et al. (1994 in Ouren et al. 2007) found corridors attracted brown-headed cowbirds and nest predators to the corridors and the adjacent forest interior. Predation rates may also increase in small patches as these are easier for predators to penetrate. Adjacent roads provide travel corridors into forested habitat from nearby areas (Small and Hunter 1988, Askins 1994 in Joslin and Youmans 1999).

Studies on ungulates and carnivores have shown heavily traveled roads are avoided or used little in comparison to lightly traveled roads (Forman et al. 2003; Rowland et al. 2005). Wisdom et al. (2005) found similar results for elk but not necessarily for deer. In a study looking at spatial partitioning between elk and deer, Wisdom et al. (2005) found elk were generally farther from roads with traffic rates as low as ≥ 1 vehicle/12 hours during day and nighttime hours while deer were found closer to roads. In addition, another study conducted by Wisdom et al. (2005) on the effects of off-road recreation on mule deer and elk, showed elk had greater flight probabilities and movement rates for all four off-road activities measured (off highway vehicles, mountain biking, horseback riding, and hiking) compared to no human activity. Elk reactions were more pronounced during the off highway vehicles and mountain biking activities than to horseback riding and hiking. Lyon (1979) reported the area of avoidance for elk is generally $\frac{1}{4}$ to $\frac{1}{2}$ mile from a road, depending on the amount of traffic, road quality, and density of cover near roads.

Rowland et al. (2005) reported habitat fragmentation was the primary effect of roads on elk. This is because there are fewer patches of cover large enough to function effectively (Rowland et al. 2005). Rowland documented three main direct impacts on elk as:

- Elk avoid areas near roads.
- Elk vulnerability to mortality from hunter harvest, both legal and illegal, increases as open road density increases.
- In areas of high road densities, elk exhibit higher stress levels (Rowland et al. 2005) and energetic costs of moving away from roads may be substantial (Cole et al. 1997).

In contrast, Wisdom et al. (2005) found mule deer showed little measurable response to off-road activities. Movement rates were slightly increased during all off-road activities except during off highway vehicle use. Stankowich (2008) and Krausman et al. (2006) showed similar responses

of mule deer. They found humans on foot have more impact than other stimuli (vehicles, noise, horseback) studied.

Ouren et al. (2007) identified mule deer disturbed by off highway vehicles altered their patterns of foraging and use of habitat while deer in undisturbed areas did not. They also found disturbance of deer resulted in decreased reproductive success (fewer fawns) while undisturbed deer showed no change in reproductive success.

Habituation of wildlife to non-motorized recreation can occur, given enough suitable habitat exists for wildlife to use. There are several examples of wildlife habituation to human activity across the Sisters Ranger District, in these cases nest sites continue to be successful from year to year, but they are all in areas where the duration of exposure to disturbance is minimal.

Trails

One literature review found the most common interactions reported in the literature between non-motorized trails and focal wildlife species was displacement and avoidance, which altered habitat use, and could cause disturbance at a specific site during a critical period (Gaines, et al. 2003). However, this review addressed different focal species than are found in the project area, and focused particularly large sensitive mammals such as grizzly bear, wolverine, and mountain goats. Two species that occur in the project area, the pygmy nuthatch, and white-headed woodpecker were addressed in the Gaines et. al. 2003 review. Trails can also affect wildlife by reducing or eliminating vegetation which can serve as food or habitat. The effects of human disturbance to wildlife is discussed further below.

Below is a summary of issues associated with human influences as they relate to roads and trails. The impacts of these factors vary based on intensity and duration and differ between species, as discussed in more detail in the effects analysis below.

Roads and Trails

- Reduce habitat
- Increase habitat fragmentation
- Increase disturbance (noise from motorized traffic, recreational use)
- Facilitate recreational access (motorized and non-motorized) into wilderness and core habitats
- Reduce connectivity for dispersal
- Increase edge habitat beneficial for a few species
- Facilitate competition with non-native species
- Result in vehicle-strike injury and mortality
- Facilitate legal and illegal hunting
- Increase habitat degradation through soil and water contamination

Quantifying Human Disturbance to Wildlife

Roads

Impacts to wildlife as a result of roads and motorized recreation have been well researched. The project has identified roads as the major vector for vandalism and user created impacts. A roads analysis identified roads needed for public access or administrative purposes such as wildfire access or silviculture. Unneeded roads were identified in both action alternatives, with the intention of reducing motorized access through road decommissioning and road closures.

Habitat enhanced by road closures will be measured based on the mile/square mile of roads closed or decommissioned in the project area.

Trails

Little research has been completed on the disturbance to wildlife from non-motorized recreation. Although several studies described in Wisdom et al. (2005) and Gaines et al. (2003) address disturbance, these studies have limited pertinence to the project because they looked at effects in entire watersheds rather than in small project areas, focused on more open areas and alpine settings, and primarily addressed species which are not found in the project area.

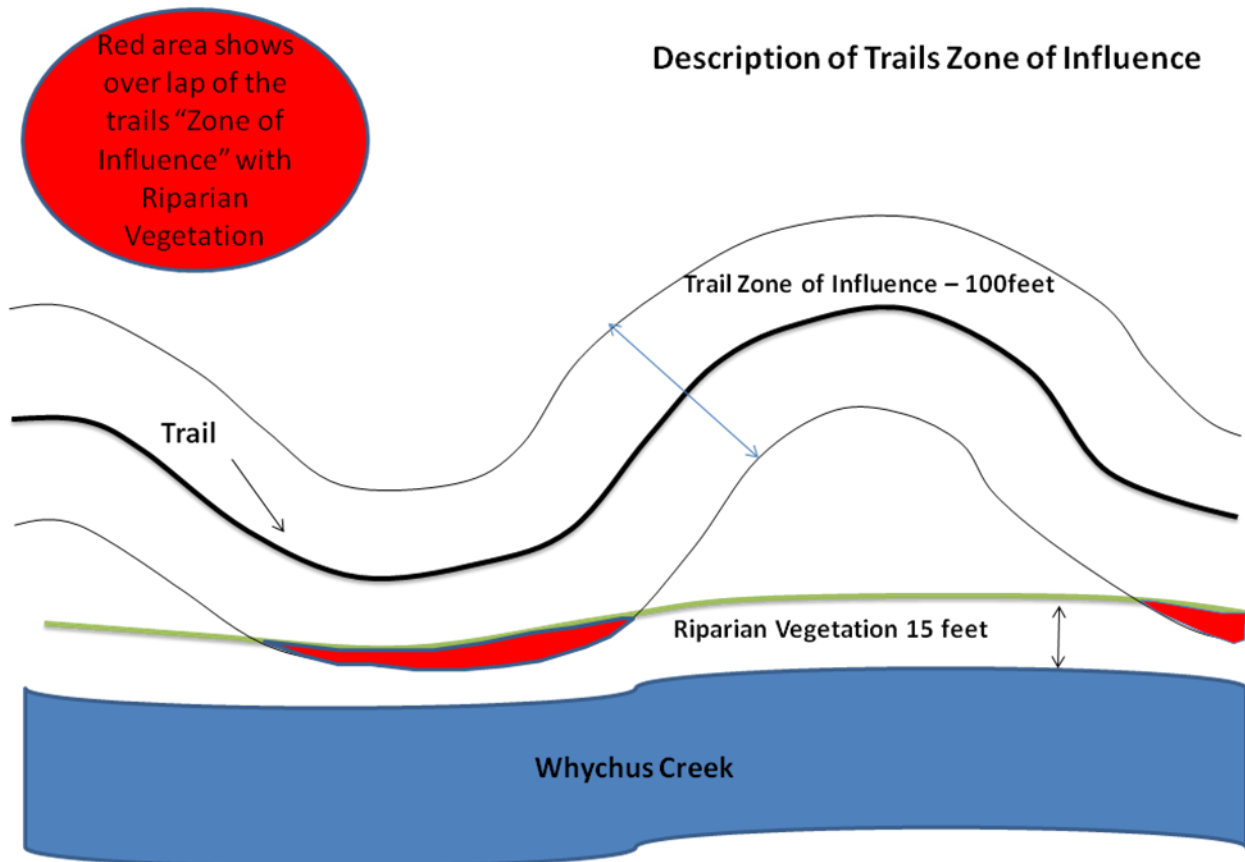
The following assumptions were used to quantify effects to wildlife. These assumptions are based on the pertinent issues and the processes identified in Gaines et al (2003).

- 1) **Having one designated trail is more beneficial to wildlife than allowing users to make their own trails across the area.** Reducing the number of user created trails and reducing the potential for more user created trail development throughout the project area would be a beneficial to wildlife by limiting human disturbance and concentrating it to one area.
- 2) **There is a narrow band of riparian vegetation.** As identified in the literature, riparian habitat is sensitive and associated species are vulnerable to human disturbance. The major area of riparian habitat was identified as the narrow strip of riparian vegetation along Whychus Creek, approximately 15 foot on either side of the creek.
- 3) **The Zone of Influence** To analyze wildlife disturbance from non-motorized trails, the “Zone of Influence” must be defined. The Zone of Influence is the area where specific wildlife species may be disturbed by people walking along the trail and varies by species and topography. The methods identified in Gaines et al (2003) were used to define the Zone of Influence for the analysis. The project contains two R6 sensitive species which are both primary cavity nesters, and the area is within biological winter range for mule deer. Therefore the habitat needs of these three species were used to establish the Zone of Influence.

The Zone of Influence used to analyze potential human disturbance from the trail was defined as 50 ft on either side of the trail, equaling a total of 100 ft. This considered: a) the focal species addressed, b) the scope and scale of the project, c) the

rugged nature of the terrain, and d) the screening provided by vegetation. This distance is also equal to one sight distance which is an un-obscured view of animal with full detail.

- 4) **“Recreational Opportunity Spectrum” Guidance** The Whychus Wild and Scenic River Plan defined the expectation that the area is to be managed as “Semi-Primitive Motorized”, a classification in the “Recreational Opportunity Spectrum” or ROS, which is used by land managers to define the type of outdoor recreation opportunities the public can reasonably expect to experience in an area. Use criteria for this classification estimate that people in any particular place in the project area can expect to see 6 to 16 parties per day and 6 or less people visible at campsites.
- 5) **Longer trails and loop trails spread out use and encounters for both people and wildlife** -With the amount of daily use anticipated, it also is assumed that the use will be spread throughout the designated trails. Longer trails or loops reduce encounters, dead end trails or shorter trails lead to more encounters. Although the zone of influence is 100 feet, disturbance is also dependent on the timing and duration. Habitat viability will not change adjacent to designated non-motorized trails, but this habitat will likely not be used as readily as habitat ≥ 50 feet from the trail.



Analysis Process

Roads

Wildlife effects were analyzed based on the amount of roads decommissioned or closed within the project area. The Whychus Creek Wild and Scenic River Management Plan calls for road closures to reduce high road densities (WWSR-W-2). An interdisciplinary Roads Analysis (Walker 2010) identified unneeded roads that provide a vector for disturbing activities, such as user created roads, trails and vandalism. Roads identified for closure or decommissioning reinforce restoration efforts in the area and reduce the potential for habitat degradation. Habitat enhanced from road closures is assessed in miles per square mile of roads removed.

Trails

Similarly, trails are analyzed based on the amount of user created trails reduced to minimize human disturbance within the project area. The existing condition of human disturbance from user created trails was calculated from the acres of the project area occupied by the trails "Zone of Influence". Habitat enhanced is assessed based on the over all acres associated with user trail decommissioning. Additionally, effects to riparian habitat will be assessed based on the where the trails Zone of Influence overlaps with riparian vegetation

Environmental Consequences

Analysis Issue: Too much or too little development will affect the Significant Wildlife Resource.

Measures:

- ✓ *Acres of riparian habitat restored (by restoring dispersed campsites)*
- ✓ *Acres of terrestrial habitat restored*
- ✓ *Effects to wildlife populations and habitat*
- ✓ *Miles of roads and trails restored*
- ✓ *Miles of road closed*

Threatened and Endangered Wildlife

Existing Condition

There is no habitat or presence of Threatened and Endangered Wildlife species in the project area.

Northern Spotted Owl, Federal Threatened, MIS

Northern spotted owls are found in higher elevation mixed conifer forests in the Whychus Watershed. The Whychus Portal project area lies east of the range of the northern spotted owl and does not occur within any critical habitat unit. There is no Nesting, Roosting, or Foraging habitat or home ranges within the project area. A full discussion of the northern spotted owl and analysis can be found in the project file (Gregg, 2010).

All Alternatives

Table 7 Threatened and Endangered Species Summary

| Species | Status | Habitat | Presence | Project Effects of Alternatives 1, 2, and 3 |
|---|-------------------------|----------------------------------|----------|---|
| Northern Spotted Owl | Federal Threatened, MIS | Old Growth Mixed Conifer Forests | No | No effect |
| Northern Spotted Owl Critical Habitat - 2008 | | | No | No effect |
| Northern Spotted Owl Critical Habitat – Historic* | | | No | No effect |

Regional Forester’s Sensitive Species (USDA 2008)

Existing Condition

A Prefield Review of habitat and populations of sensitive species is summarized in the following table.

Table 8. Sensitive Species Summary for the Deschutes National Forest.

| Species | Status | Habitat | Presence |
|--|----------------------------------|---|----------|
| Northern Bald Eagle (<i>Haliaeetus leucocephalus</i>) | Regional Forester Sensitive, MIS | Lakeside with Large Trees | No |
| Bufflehead (<i>Bucephala albeola</i>) | Regional Forester Sensitive | Lakes, Snags | No |
| Harlequin Duck (<i>Histrionicus histrionicus</i>) | Regional Forester Sensitive | Rapid Streams, Large Trees | No |
| Horned Grebe (<i>Podiceps auritus</i>) | Regional Forester Sensitive | Lake | No |
| Tricolored Blackbird (<i>Agelaius tricolor</i>) | Regional Forester Sensitive | Lakeside, Bullrush | No |
| Yellow Rail (<i>Coturnicops noveboracensis</i>) | Regional Forester Sensitive | Marsh | No |
| Western Sage Grouse (<i>Centrocercus urophasianus phaeios</i>) | Regional Forester Sensitive | Sagebrush Flats | No |
| American Peregrine Falcon (<i>Falco peregrinus anatum</i>) | Regional Forester Sensitive, MIS | Riparian, Cliffs | No |
| Lewis’ Woodpecker (<i>Melanerpes lewis</i>) | Regional Forester Sensitive, MIS | Large, open ponderosa pine and burned forests | Yes |

| Species | Status | Habitat | Presence |
|---|--|---|----------|
| White-headed Woodpecker (<i>Picoides albolarvatus</i>) | Regional Forester Sensitive, MIS | Large, open ponderosa pine | Yes |
| Northern Waterthrush (<i>Seiurus noveboracensis</i>) | Regional Forester Sensitive | Riparian vegetation including willows and alder | No |
| Pacific Fisher (<i>Martes pennanti</i>) | Federal Candidate, Regional Forester Sensitive | Mixed, Complex | No |
| Pygmy Rabbit (<i>Brachylagus idahoensis</i>) | Regional Forester Sensitive | Sagebrush Flats | No |
| California Wolverine (<i>Gulo gulo</i>) | Regional Forester Sensitive, MIS | Mix, High Elevation | No |
| Townsend's Big-eared Bat (<i>Corynorhinus townsendii</i>) | Regional Forester Sensitive, MIS | Caves | No |
| Oregon Spotted Frog (<i>Rana pretiosa</i>) | Federal Candidate, Regional Forester Sensitive | Stream, Marsh | No |
| Crater Lake Tightcoil (<i>Pristiloma arcticum crateris</i>) | Regional Forester Sensitive | Riparian, Perennially Wet | Yes |
| Silver-bordered Fritillary (<i>Boloria selene atrocotalis</i>) | Regional Forester Sensitive | Open riparian bogs and marshes | No |
| Johnson's Hairstreak (<i>Mitoura johnsonii</i>) (<i>Callophrys johnsonii</i>) | Regional Forester Sensitive | Coniferous forests with mistletoe | No |

Sensitive species which do not occur and have no habitat in the project area are not further discussed in this document. Further discussion is found in the Project File (Gregg 2010)

The following sensitive animal species have habitat or are known to occur in the project area and will be included in this analysis:

| | |
|-------------------------|-------------------------------------|
| Lewis' Woodpecker | <i>Melanerpes lewis</i> |
| White-headed Woodpecker | <i>Picoides albolarvatus</i> |
| Crater Lake Tightcoil | <i>Pristiloma arcticum crateris</i> |

Lewis' and White-headed Woodpecker, Region 6 Sensitive and MIS

Lewis Woodpecker

Nature Serve State Conservation Status: S2 S3B Imperiled/Vulnerable-Breeding

Formerly widespread, this species is common year-round only in the white oak, ponderosa pine belt east of Mt. Hood. Habitat for the Lewis' woodpecker, a migrant in this part of its range, includes old-forest, single-storied ponderosa pine. Burned ponderosa pine forests created by

stand-replacing fires provide highly productive habitats as compared to unburned pine (Wisdom et al., 2000). Lewis' woodpeckers feed on flying insects and are not strong cavity excavators. They require large snags in an advanced state of decay that are easy to excavate, or they use old cavities created by other woodpeckers. Nest trees generally average 17 to 44 inches (Saab and Dudley 1998, Wisdom et al., 2000). Known breeding has been documented in low numbers along Whychus Creek (Marshall et al. 2003) and in recent burned areas across the Deschutes.

The Rooster Rock Fire occurred during the summer of 2010, creating a pulse of fire killed trees within the project area. The burned stands consist of small diameter second growth ponderosa pine with an average size of approximately 14" diameter at breast height (dbh). In evaluating landscape predictor variables for the Lewis' woodpecker, **Saab et al. (2002)** found a negative relation to burned ponderosa pine/Douglas-fir stands with high crown closure (>70%) but was positively associated with low snag densities overall. However, although it selects for more open stands, this species selected nest sites with higher densities of large snags (≥ 20 " dbh) (Saab and Dudley 1998). Lewis' woodpeckers are different than other woodpeckers. They are aerial insectivores during the breeding season and use lower densities of smaller snags but rely more heavily on large snags (Saab and Dudley 1998). Habitat for Lewis' woodpecker will increase after 5-10 years in fire areas as smaller snags fall.

The Lewis' woodpecker is declining throughout its range. Threats to this species include the loss of suitable habitat, competition for nest trees, and effects of pesticides on insects.

Foraging habitat occurs within the project and is associated with the riparian areas adjacent Whychus Creek and within the recent Rooster Rock fire. No known nest sites occur within the project area.

White-headed Woodpecker

Nature Serve State Conservation Status: S2 S3 Imperiled/Vulnerable

White-headed woodpeckers are uncommon permanent residents in forests east of the Cascades. They use habitat with large open ponderosa pine, low shrub levels, and large snags. Dixon (1995) found white-headed woodpecker densities increased with increasing old-growth ponderosa pine trees and showed a positive association with large ponderosa pine. The white-headed woodpecker is a primary cavity excavator of soft snags. This woodpecker is the only woodpecker species to rely heavily on seeds of ponderosa pine for food (Marshall et al., 2003).

A long term study on the white-headed woodpecker occurred on the Deschutes and Winema National Forests from 1997-2004 with several Deschutes study sites occurring in the Metolius Basin area. Frenzel (2000) calculated the mean diameter for white-headed woodpecker nest trees to be 26.2" dbh while Dixon (1995) found similar results (mean diameter of 25.6" dbh). Frenzel (2003) found nests at sites with a high density of large diameter trees had a higher survival rate than nests in recently harvested sites. Unharvested sites or sites with greater than 12 trees per acre >21 " dbh had a success rate of 63.1% while nests at previously harvested sites or lower densities of large trees had a success rate of 39.8%. Therefore, white-headed woodpeckers were positively associated with higher densities of large trees. On the Winema National Forest, white-headed woodpeckers were found to be using small-diameter trees, logs in a slash pile and upturned roots (6-13" dbh) where large snags were uncommon (Frenzel 2002).

Threats to this species include increased stand densities in ponderosa pine due to fire suppression, loss of large, old ponderosa pine trees and snags, wildfire, and increased shrub densities. Increased shrub densities may be factors leading to increased mammalian nest predation and increased risk of avian predation on adults (Frenzel 2000).

The project area is dominated by second growth ponderosa pine with an average diameter of approximately 14" dbh. Very few residual old growth occur within the project area, but do occur in the area associated with the Road 900 dispersed campsite.

No known nest sites occur within the project area, but there is foraging habitat associated with the second growth ponderosa pine stands that occur within the project area as well as fire killed trees associated with the recent Rooster Rock fire.

Environmental Consequences

Alternative 1 - No Action Alternative

The current condition and trend will continue with the No Action Alternative. Continued disturbance will occur from motor vehicles on 34 miles of system roads in the project area. Dispersed camping areas near the creek will remain open, impacting at least 3 acres of riparian habitats. Approximately 1 acre of upland terrestrial dispersed camp sites would remain open. These dispersed campsites are centers of vandalism such as tree cutting and tree shooting and this habitat degradation could disturb Lewis' and white-headed woodpeckers utilizing the project area for nesting and foraging. Unmanaged dispersed recreation will likely continue to increase. Open road densities will continue to provide disturbance to foraging habitat and access to the user created non-motorized trails. These trails also access riparian habitat and could disturb Lewis woodpecker foraging areas.

There are 5 miles of user created trails mapped within the project area. This is expected to increase without recreation management. Considering a 100 foot buffer around the trail as the area where wildlife could be disturbed, the "Zone of Influence" of currently mapped user trails is approximately 49 acres. This is approximately 0.2 % of the overall available habitat on the Deschutes National Forest.

Alternative 2 - Proposed Action- Direct and Indirect Impacts

Actions such as road decommissioning and road closures, riparian and upland habitat restoration, and managing recreational use will have beneficial impacts and no direct or indirect adverse impacts to Lewis' or white-headed woodpeckers or their habitat. The project does not propose to remove any constituent habitat elements for these species.

Road closures reducing open system roads and restoration of dispersed camping areas adjacent to habitat would reduce disturbance to these species and have beneficial effects. Approximately 6.2 miles of roads would be decommissioned and replanted to restore terrestrial habitat. Closure of 4.6 miles of roads would enhance wildlife security, removing vehicles and human disturbance from important habitat areas near Whychus Creek. Approximately 2.5 acres of dispersed camping areas near the creek would be restored. Approximately 1 acre of upland terrestrial

dispersed camp sites would be restored. These campsites are centers of vandalism such as tree cutting and tree shooting and its contribution of habitat degradation.

Designating non-motorized trail systems could also be beneficial, by moving recreationists away from riparian zones in many places and keeping mountain bike trails and bikes in the uplands outside the Wild and Scenic River corridor. As noted in the general discussion at the beginning of this report above, no recreation trail-associated factors have been identified as issues for white-headed woodpeckers (Hamann et al. 1999).

Designating a new trail system could create added human disturbance in areas where use is currently low. Studies have not identified human disturbance as an issue for white-headed woodpeckers habitat use or other cavity nesters (Hamann et al. 1999, Gaines et al. 2003).

Disturbance from the new trail will be localized and the amount of trails will be reduced by over 1 mile from the existing condition. Under the proposed action, 3.9 miles of trails will be designated within the project area. The Zone of Influence for the trail would be approximately 38 acres however as discussed above, however habitat will not be degraded and these cavity nesters are not expected to be disturbed by people on the trail. This is approximately 1% of the project area.

By managing the currently uncontrolled dispersed recreation, Alternative 2 would change the distribution of use in the project area, leading recreationists out of the most sensitive resource areas, and provide a stable non-motorized system trail to manage the increasing recreational demand as the community grows. No mountain bikes will be allowed on the new creek side trail. Most of the 2.9 miles of mountain bike trail will be located outside the Wild and Scenic Corridor to allow bikers to travel from the Peterson Ridge Trail to the Metolius/Windigo Trail. This will lessen disturbance impacts to wildlife in the corridor.

Implementation of Alternative 2 is consistent with Standards and Guides within the Whychus Wild and Scenic River Management Plan as well as the Deschutes National Forest Land and Resource Management Plan.

The project is very small in scope and scale, disturbance to these species within their range is negligible. On average there is approximately 21,777 acres of Lewis and white-headed woodpecker habitat across the Deschutes National Forest. Human disturbance from the proposed action has the potential to disturb approximately 38 acres, which is approximately 0.2% of the overall available habitat on the Deschutes National Forest.

Cumulative Impacts

The project will not remove any constituent habitat elements and there are no direct or indirect impacts associated with the project. Therefore, there are no cumulative effects.

The project will have **No Impact** to the Lewis' and white-headed woodpecker or its habitat.

The Whychus Portal project will not contribute to an overall downward trend of species viability at the Forest level.

Alternative 3 - Less Development, Maximize Primitive Character

Direct and Indirect Impacts

Actions such as road decommissioning and road closures, riparian and upland habitat restoration, and managing recreational use will have beneficial impacts and no direct or indirect adverse impacts to Lewis' or white-headed woodpeckers or their habitat. The project does not propose to remove any constituent habitat elements for these species.

As In Alternative 2, this alternative will reduce road densities and dispersed campsites limiting the potential for disturbance and creating larger blocks of unroaded areas to provide higher quality Lewis' and white-headed woodpecker habitat within the Whychus Wild and Scenic Corridor. Approximately 6.2 miles of roads would be decommissioned and replanted to restore terrestrial habitat. Closure of 5.1 miles of roads would enhance wildlife security, removing vehicles and human disturbance from important habitat areas near Whychus Creek. Three acres of dispersed camping areas near the creek would be restored. Approximately 1 acre of upland terrestrial dispersed camp sites would be restored. These campsites are centers of vandalism such as tree cutting and tree shooting and its contribution of habitat degradation.

Designating a new trail system could create added human disturbance in areas where use is currently low. Disturbance from the new trail would be localized and the amount of trails would be reduced by over 4 miles from the existing condition. Under the proposed action, 2 miles of trails would be designated within the project area. The Zone of Influence for the trail would be approximately 20 acres, however as discussed above, however habitat would not be degraded and these cavity nesters are not expected to be disturbed by people on the trail. This is approximately 0.5% of the project area.

This alternative is a less proactive approach to managing increasing human use. As in Alternative 2, human disturbance to wildlife would be reduced by: 1) designating a system trail, 2) road closures, and 3) closure and restoration of dispersed camping areas adjacent to the riparian zone. However Alternative 3 does not address the increasing use in the project area and the two "dead end" hiking trails are likely to encourage creation of user trails where people try to continue upstream. As use increases in the future, development of additional user created trails may degrade habitat through unmanaged disturbance.

Effects of the designated mountain bike trail are the same as discussed in Alternative 2.

Implementation of Alternative 3 is consistent with Standards and Guides within the Whychus Wild and Scenic River Management Plan as well as the Deschutes National Forest Land and Resource Management Plan.

The project is very small in scope and scale, disturbance to these species within their range is negligible. On average there is approximately 21,777 acres of Lewis and white-headed

woodpecker habitat across the Deschutes National Forest. Human disturbance from this alternative action has the potential to disturb approximately 20 acres, which is approximately 0.09% of the overall habitat on the Deschutes National Forest.

Cumulative Effects

The project would not remove any constituent habitat elements and there are no direct or indirect impacts associated with the project. Therefore there are no cumulative effects.

The project will have **No Impact** to the Lewis' and white-headed woodpecker or its habitat. The action alternatives will not contribute to an overall downward trend of species viability at the Forest level.

Crater Lake Tight Coil, Region 6 Sensitive

Nature Serve State Conservation Status: S1 Critically Imperiled

The Crater Lake Tightcoil may be found in perennially wet situations in mature conifer forests, among rushes, mosses and other surface vegetation or under rocks and woody debris within 10 m. of open water in wetlands, springs, seeps and riparian areas, generally in areas which remain under snow for long periods during the winter. Riparian habitats in the Eastern Oregon Cascades may be limited by the extent of permanent surface moisture, which is often less than 10 m. from open water (Duncan et al. 2003). This habitat type exists in the project area and is associated within the perennially wet portions of the riparian zone.

Environmental Consequences

Alternative 1 - No Action Alternative

Under the No Action Alternative this trend and the impacts to Crater Lake Tightcoil would continue. This trend may lead to more impacts and degradation of riparian habitat in the future as more user trails develop. Potential habitat for the species has been damaged or eliminated in 3 acres of high use areas associated with the gauging station, Whychus House cave, and the Road 900 dispersed campsite.

Alternative 2 and 3

Both Alternatives improve riparian habitat conditions. Both alternatives would focus on restoring fully functioning riparian habitat, revegetating areas in the riparian zones where impacts such as erosion has removed the vegetation due to user created impacts. Slightly more riparian habitat in dispersed campsites under Alternative 3 (3 acres) versus Alternative 2 (2.5 acres).

However, Alternative 3 is a less proactive approach to managing increasing human use. Alternative 3 does not address the increasing use in the project area and the 2 “dead end” trails are likely to encourage creation of more user trails where people continue up the stream. User created trails are often closer to the stream than designed trails and more likely to degrade riparian habitat.

Implementation of Alternative 2 or 3 will have **no impact** to the Crater Lake tightcoil.

Implementation of Alternative 2 or 3 is consistent with Standards and Guides within the Whychus Wild and Scenic River Management Plan as well as the Deschutes National Forest Land and Resource Management Plan.

Cumulative Impacts

The project will not remove any constituent habitat elements and there are no direct or indirect impacts associated with the project. Therefore, there are no cumulative effects.

The project will have **No Impact** to the Crater Lake tightcoil. The action alternatives will not contribute to an overall downward trend of species viability at the Forest level.

MANAGEMENT INDICATOR SPECIES AND SPECIES OF CONCERN

The Deschutes National Forest Land and Resource Management Plan (LRMP) (USDA 1990) identified a group of wildlife species as management indicator species (MIS). These species were selected because they represent other species with similar habitat requirements.

Management indicator species can be used to assess the impacts of management activities for a wide range of wildlife species with similar habitat needs (FSM 2620.5). Those management indicator species selected for the Deschutes National Forest include the bald eagle, northern spotted owl, golden eagle, red-tail hawk, osprey, northern goshawk, Cooper's hawk, sharp-shinned hawk, great gray owl, great blue heron, woodpeckers (cavity nesters), peregrine falcon, California wolverine, elk, mule deer, American marten, Townsend's big-eared bat, and waterfowl. All but the following have been covered in previous sections (TES section) and will be discussed below: northern goshawk, Cooper's hawk, sharp-shinned hawk, great gray owl, great blue heron, golden eagle, osprey, waterfowl, red-tail hawk, osprey, woodpeckers, American marten, elk, and mule deer.

In addition to the above mentioned MIS species there have been a number of wildlife species for which analysis is required through other directives such as Birds of Conservation Concern or landbirds.



Management Indicator Species

Table 9. Management Indicator Species Summary for the Deschutes National Forest.

| Species | Habitat | Habitat in Project Area |
|--|---|--------------------------------|
| Northern Goshawk (<i>Accipiter gentiles</i>) | Mature and old-growth forests; especially high canopy closure and large trees | Yes |
| Coopers Hawk (<i>Accipiter cooperi</i>) | Similar to goshawk, can also use mature forests with high canopy closure/tree density | Yes |
| Sharp-shinned Hawk (<i>Accipiter striatus</i>) | Similar to goshawk in addition to young, dense, even-aged stands | Yes |
| Great Gray Owl (<i>Strix nebulosa</i>) | Mature and old growth forests associated with openings and meadows | No habitat in project area |
| Great Blue Heron (<i>Ardea herodias</i>) | Riparian edge habitats including lakes, streams, marshes and estuaries | Yes |
| Golden Eagle (<i>Aquila chrysaetos</i>) | Large open areas with cliffs and rock outcrops | No |
| Waterfowl* | Lakes, ponds, streams | Yes |
| Red-tailed Hawk (<i>Buteo jamaicensis</i>) | Large snags, open country interspersed with forests | Yes |
| Osprey (<i>Pandion haliaetus</i>) | Large snags associated with fish bearing water bodies | No habitat in project area |
| Neotropical Migrants*- See Landbirds | Various habitats | |
| Townsend's Big-eared Bat (<i>Corynorhinus townsendii</i>) | Caves | No |
| American Marten (<i>Martes americana</i>) | Mixed Conifer or High Elevation late successional forests with abundant down woody material | No habitat in project area |
| Elk (<i>Cervus elephas</i>) | Mixed habitats | Yes |
| Mule Deer (<i>Odocoileus hemionus</i>) | Mixed habitats | Yes |
| Snags and Down Wood Associated Species and Habitat* or Primary Cavity Excavators | Snags and down woody material | Yes |

Birds of Conservation Concern

In January 2001, President Clinton issued an executive order on migratory birds directing federal agencies to avoid or minimize the negative impact of their actions on migratory birds, and to take active steps to protect birds and their habitats. Federal agencies were required within two years to develop a Memorandum of Understanding (MOU) with the U.S. Fish and Wildlife Service to conserve migratory birds including taking steps to restore and enhance planning processes whenever possible. To meet this goal in part the U.S. Fish and Wildlife Service developed the

Birds of Conservation Concern released in December 2002 (USFWS 2002) and an update to the original list was released in 2008 (USFWS 2008).

The “Birds of Conservation Concern 2008” (BCC) identifies species, subspecies, and populations of all migratory non-game birds that without additional conservation actions are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973. Bird species considered for inclusion on lists in this report include non-game birds, gamebirds without hunting seasons, subsistence-hunted non-game species in Alaska, landbirds, shorebirds, waterbirds, and Endangered Species Act candidate, proposed endangered or threatened, and recently delisted species. While all of the bird species included in BCC are priorities for conservation action, the list makes no finding with regard to whether they warrant consideration for ESA listing. The goal is to conserve avian diversity in North America and includes preventing or removing the need for additional ESA bird listings by implementing proactive management and conservations actions (USFWS 2008). The 2008 lists were derived from three major bird conservation plans: the Partners in Flight North American Landbird Conservation Plan, the United States Shorebird Conservation Plan, and the North American Waterbird Conservation Plan. Conservation concerns stem from population declines, naturally or human-caused small ranges or population sizes, threats to habitat, or other factors.

Bird Conservation Regions (BCRs) were developed based on similar geographic parameters and are the basic units within which all bird conservation efforts should be planned and evaluated (USFWS 2008). One BCR encompasses the Whychus Portal project – BCR 9, Great Basin. See Table 10 for a list of the bird species of concern for the area, the preferred habitat for each species, and whether there is potential habitat for each species within the Whychus Portal project area.

Table 10. Bird Conservation Region 9 (Great Basin) Birds of Conservation Concern 2008 list.

| Bird Species | Preferred Habitat | Habitat within the Whychus Portal Project area (Y or N) |
|--|---|--|
| Greater Sage Grouse (Columbia Basin DPS) | Sagebrush dominated Rangelands | No |
| Eared Grebe (non-breeding) | Open water intermixed with emergent vegetation | No |
| Bald Eagle | Lakeside with large trees | No |
| Ferruginous Hawk | Elevated Nest Sites in Open Country | No |
| Golden Eagle | Elevated Nest Sites in Open Country | Yes |
| Peregrine Falcon | Cliffs | No |
| Yellow Rail | Dense Marsh Habitat | No |
| Snowy Plover | Dry Sandy Beaches | No |
| Long-billed Curlew | Meadow/Marsh | No |
| Marbled Godwit | Marsh/Wet Meadows | No |
| Yellow-billed Cuckoo | Dense riparian/cottonwoods | No |
| Flammulated Owl | Ponderosa pine forests | Yes |
| Black Swift | Cliffs associated with waterfalls | No |
| Calliope Hummingbird | Open mountain meadows, open forests, meadow edges, and riparian areas | No |
| Lewis's Woodpecker | Ponderosa pine forests | Yes (Addressed in Biological Evaluation) |
| White-headed Woodpecker | Ponderosa pine forests | Yes (Addressed in Biological Evaluation) |
| Loggerhead Shrike | Open country with scattered trees or shrubs | No |
| Pinyon Jay | Juniper, juniper-ponderosa pine transition, and ponderosa pine edges | Yes |
| Sage Thrasher | Sagebrush | No |
| Virginia's Warbler | Scrubby vegetation within arid montane woodlands | No |
| Green-tailed Towhee | Open ponderosa pine with dense brush | Yes |
| Brewer's Sparrow | Sagebrush clearings in coniferous forests/bitterbrush | No |
| Black-chinned Sparrow | Ceanothus and oak covered hillsides | No |
| Sage Sparrow | Unfragmented patches of sagebrush | No |
| Tricolored Blackbird | Cattails or Tules | No |
| Black Rosy Finch | Rock outcroppings and snowfields | No |

Landbird Strategic Plan

The Forest Service has prepared a Landbird Strategic Plan (USDA 2000) to maintain, restore, and protect habitats necessary to sustain healthy migratory and resident bird populations to achieve biological objectives. The primary purpose of the strategic plan is to provide guidance for the Landbird Conservation Program and to focus efforts in a common direction. On a more local level, individuals from multiple agencies and organizations with the Oregon-Washington Chapter of Partners in Flight participated in developing publications for conserving landbirds in this region. A Conservation Strategy for Landbirds of the East-Slope of the Cascade Mountains in Oregon and Washington was published in June 2000 (Altman 2000). This document outlines conservation measures, goals and objectives for specific habitat types found on the east-slope of the Cascades and the focal species associated with each habitat type. These documents provide recommendations for habitat management. The East-Slope Cascades Strategy covers the Deschutes National Forest and the forest is contained within the Central Oregon subprovince. See Table 6 for specific habitat types highlighted in these documents, the habitat features needing conservation focus and the focal bird species for each.

A Conservation Strategy for Landbirds of the East-slope of the Cascade Mountains in Oregon and Washington

**Table 11. Priority habitat features and associated focal species
for the East-Slope Cascade Strategy.**

| Habitat | Habitat Feature | Focal Species for Central Oregon |
|-----------------------------------|--|---|
| Ponderosa Pine | Large patches of old forest with large snags | White-headed woodpecker |
| | Large trees | Pygmy nuthatch |
| | Open understory with regenerating pines | Chipping sparrow |
| | Patches of burned old forest | Lewis' woodpecker |
| Mixed Conifer (Late-Successional) | Large trees | Brown creeper |
| | Large snags | Williamson's sapsucker |
| | Interspersion grassy openings and dense thickets | Flammulated owl |
| | Multi-layered/dense canopy | Hermit thrush |
| | Edges and openings created by wildfire | Olive-sided flycatcher |
| Lodgepole Pine | Old growth | Black-backed woodpecker |
| Whitebark Pine | Old growth | Clark's nutcracker |
| Meadows | Wet/dry | Sandhill Crane |
| Aspen | Large trees with regeneration | Red-naped sapsucker |
| Subalpine fir | Patchy presence | Blue Grouse |

Affected Wildlife Species

Species Associated with Ponderosa Pine Habitats –

Northern Goshawk/Cooper's Hawk/Sharp-Shinned Hawk (MIS), Pinyon Jay/Green-tailed Towhee(Birds of Conservation Concern), Pygmy Nuthatch/Chipping Sparrow (Landbird Focal Species)

Existing Condition

Goshawk (MIS)

Nature Serve State Conservation Status: S3 Vulnerable

The goshawk is considered a management indicator species in the Deschutes Land and Resource Management Plan. This species is associated with mature and late-successional forests. All mature and late-successional habitats are considered potential nesting habitat and earlier forested seral stages are considered potential foraging habitat. Moist mixed conifer and moist ponderosa pine late-successional areas are preferred habitats, although forest structure appears to be the more limiting factor to goshawk habitat rather than stand composition (i.e. tree species). Preferred nest stands have a minimum of 40% canopy closure; and the nest sites within these stands have >60% canopy closure (Reynolds et al. 1991).

There are no Breeding Bird Survey data available for goshawk in the state of Oregon due to the low detectability of this species using Breeding Bird Survey methods. However, for western North America, Breeding Bird Survey data (1966-1995) show a stable trend (Wisdom et al. 2000). There is a separate trend for fall migration conducted by Hawkwatch International from 4 locations in Utah and New Mexico. Data indicate an average decline of 4% annually between 1977 and 1991 (Wisdom et al. 2000).

Goshawk Research Associated with Road Impacts

Disturbance at specific sites and collection were road associated factors identified by Gaines et al. (2003). Human disturbance to nests have been a suspected cause of nest abandonment (Reynolds et al. 1992). In addition, roads may facilitate access for falconers to remove young from nests (Erdman et al. 1998 in Gaines et al. 2003). It is suspected that falconers have visited various nests on the Deschutes (K.Hennings, M.Gregg, pers.comm).

Grubb et al. (1998) found goshawks showed no discernible behavioral responses to traffic greater than 400 meters from nest sites in forested habitats with noise levels below 54dB. In addition, Jones (1979) recommended a 400-500 meter buffer around goshawk nest sites from March 1 through September 30 to protect against disturbance. However, in a study conducted by Bautista et al. (2004), increased traffic levels were found not to impact the presence of goshawks near roads. This may be in part due to traffic being a routine disturbance and/or because prey was more abundant near roads either as roadkill or live prey.

No known goshawk nest sites occur within the project area. Nesting habitat occurs, and is associated with late and old structure ponderosa pine and mixed conifer forests in the area of Road 900 and the associated dispersed campsites. Foraging habitat exists throughout the project

area, and prey base increases in the area of the riparian habitat along Whychus Creek due to the diversity of bird species attracted by the water and diversity of plants that exists along the creek. In addition, due to the Rooster Rock wildfire that occurred within the project area summer of 2010, a variety of woodpecker that forage on insects within post-fire habitat will provide a short-term preybase for the goshawk. In the various fire areas that have occurred across the Sisters Ranger District in the last 10 years, it is common to see goshawk foraging within these post fire environments.

Cooper's and Sharp-shinned Hawks (MIS)

Nature Serve State Conservation Status: S4 Apparently Secure

The Cooper's and sharp-shinned hawks are considered MIS species in the Deschutes LRMP. They often use dense cover in which to hunt and nest. Cooper's hawks tend to select nest sites in dense second growth of mixed conifer or ponderosa pine stands (Jackman and Scott 1975). Moore and Henney (1983) noted this species would routinely utilize mistletoe brooms as nesting sites. Sharp-shinned hawks utilize thickets in mixed conifer and deciduous woods. Generally, nesting habitat has been grouped into 3 types by Reynolds (1976): young, even-aged conifer stands with single-layered canopies; mature, old-growth stands of mixed conifer with multi-layered canopies; and dense stands of aspen.

No known nest sites occur within the project area. The project area is dominated by second growth ponderosa pine, which provides suitable nesting and foraging habitat for the Cooper's and sharp-shinned hawks. In addition, and similar to the goshawk, the riparian zone provides foraging habitat due to the increased use by bird species which are attracted by the water and the diversity of plants the riparian zones provide.

Red-tailed Hawk (MIS)

Nature Serve State Conservation Status: S2 S3 Imperiled/Vulnerable

The red-tailed hawk is found throughout the state in every habitat and at every elevation, although they are scarce in dense forests (Marshall et al. 2003). They are perch hunters (trees, utility poles, etc.) and inhabit mixed country of open areas interspersed with woods (agricultural areas, grasslands, woodlands, meadows). They roost in thick conifers and nest in large conifer snags often in the tallest tree on the edge of the timber (Jackman and Scott 1975). They feed mainly on small to medium prey including ground squirrels, cottontails, voles, pocket gophers, snakes (Marshall et al. 2003) but may also take larger mammals (skunks), birds, reptiles, and insects (Jackman and Scott 1975).

No known nest sites occur within the project area, and due to the past harvest of the 1930's through 1960's very few large snags exist. Red-tailed hawks are generalists, and can use a variety of habitats and therefore the project has the potential to provide habitat. The area adjacent to the Road 900 closure and associated dispersed campsites, contain large residual old growth pine that could provide nesting opportunities.

Pygmy Nuthatch (Landbird Focal Species)

Nature Serve State Conservation Status: S4 Apparently Secure

This bird is also considered a focal species identified in the Conservation Strategy for Land Birds of the East Slope of the Cascade Mountains. In Oregon, it occurs in mature and old growth ponderosa pine or mixed-species forests dominated by ponderosa pine. However, they sometimes forage in young ponderosa pines and in lodgepole pine stands.(Stern et al. 1987). They nest in cavities in snags or dead portions of live trees (Norris 1958). These birds forage on outer branches in upper canopy on needle clusters, cones, and emerging shoots. Their diet varies by season and locale, but consists mainly of insects (Norris 1958). Population declines have been based on habitat deterioration caused by loss of large diameter snags and replacement of large ponderosa pines with smaller trees and other conifer species through fire control and logging (Agee 1991).

No known nest sites occur within the project area. Very little old growth occurs within the project area, but the project is dominated by second growth ponderosa pine and provides foraging habitat for the pygmy nuthatch.

Chipping Sparrow (Landbird Focal Species)

Nature Serve State Conservation Status: S4 Apparently Secure

The chipping sparrow is an uncommon to common summer resident preferring open habitats with a shrub or grass component. Chipping sparrows prefer open coniferous forests or stands of trees interspersed with grassy openings or low foliage (Marshall et al. 2003). In central Oregon, good numbers of chipping sparrows can be found in juniper, ponderosa pine, and lodgepole pine communities but are not present in sagebrush (Marshall et al. 2003). This sparrow breeds in scattered locations in the Cascades and throughout higher elevations of eastern Oregon. Its diet is not well known. A study conducted for central Oregon (Eastman 1960 in Marshall et al. 2003) shows a preference for weed seeds. Declines in populations have been noted from Breeding Bird Survey results (1966-2000) for the chipping sparrow showing a 3.9% decrease per year. Some reasons for this decline include habitat changes due to fire suppression resulting in closed canopy habitat, cowbird parasitism, and competition with house sparrows and house finches.

No known nest sites occur within the project area. The project is largely second growth ponderosa pine. The project area likely provides foraging habitat of the chipping sparrow.

Pinyon Jay (Bird of Conservation Concern)

Nature Serve State Conservation Status: S5 Secure

Pinyon jays are permanent uncommon to common residents in juniper and ponderosa pine woodlands of central Oregon. Oregon's known breeding range is confined to the Metolius River drainage eastward along the southern Ochoco Mountains south through Bend and east of Newberry Crater to Silver Lake basin. There is no documented breeding outside of central Oregon in the last half century (Marshall et al. 2003). However, their range expands somewhat outside of the breeding season. The pinyon jay occurs in juniper, juniper ponderosa pine transition areas, and ponderosa pine edge forests. They breed in loose colonies and spend most of the year in nomadic flocks. They are ground feeders of nuts, seeds, young cones, juniper berries, grains, and insects and will take eggs and young birds as well.

Breeding Bird Survey data (1966-1999) indicate an annual 3.5% decline per year throughout their range. Oregon's population is small compared to the majority of their range (pinyon pine areas). Threats include the increased vulnerability of isolation from the core population, as well as increased populations of crows and ravens due to human expansion which leads to an increased predation risk. Effects of juniper expansion and large scale juniper removal are unknown.

Annually, the pinyon jay migrates through Sisters and is commonly seen around town and lower elevation ponderosa pine stands. The second growth ponderosa pine within the project area provides foraging habitat for the pinyon jay. Due to their variations in foraging styles and occurrences of nest predation, the pinyon jay likely forages throughout the riparian zone foraging on small birds and eggs.

Green-tailed Towhee (Bird of Conservation Concern)

Nature Serve State Conservation Status: S5 Secure

The green-tailed towhee is a fairly common summer species east of the Cascades in central Oregon. This species prefers vigorous shrub stands and high shrub density. This species is known to occupy brushy slopes with intermittent trees, juniper and mountain mahogany stands, riparian areas in dry open country, and ponderosa pine-sagebrush associations. However, for central Oregon it was detected at higher densities in grasslands with 5% shrub cover than in shrub-steppe. It was also detected using juniper stands and ponderosa pine stands with a shrub understory (Marshall et al. 2003). Their diet consists primarily of insects and weed seeds but may also consume fruit. Trends are difficult to discern for this species. Breeding Bird Survey data (1982-1991) for Oregon shows a marginally significant increase but for the overall population the data shows a slight (1.7% per year) decline (Breeding Bird Survey data 1966-2000). Threats include fire suppression which may degrade habitat by reducing forest openings with brushy regrowth (Marshall et al. 2003).

No known nest sites occur within the project area. Nesting and foraging habitat exists in an area containing dense manzanita between the proposed lower road closures and the over look.

Environmental Consequences

Alternative 1 - No Action Alternative

The current condition and trend would continue with the No Action Alternative. There are currently approximately 32.8 miles of open roads within the project area. Continued disturbance and its contribution to habitat degradation from motor vehicles as well as vandalism such as tree cutting and shooting at dispersed camp sites could disturb species associated with ponderosa pine habitat which utilize the project area for nesting and foraging. Unmanaged dispersed recreation will continue, and the levels of open road densities would continue to allow disturbance to foraging habitat as well as access to the user created non-motorized trails. These trails also access riparian habitat and could create added disturbance to foraging areas.

There are 5 miles of user created trails mapped within the project area. This is expected to increase without recreation management. Considering a 100 foot buffer around the trail as the area where wildlife could be disturbed, the Zone of Influence of currently mapped user trails is approximately 49 acres. This is approximately 1.3 % of the project area..

Alternative 2 - Proposed Action- Direct and Indirect Impacts

There would be no direct or indirect impacts to the habitat for species associated with ponderosa pine forests within the project area. The project does not propose the removal of any constituent habitat elements for these species. Disturbance would be reduced by both road closures and by closing dispersed camping areas adjacent to habitat. Designating non-motorized trail systems could also be beneficial, by moving user created trails away from the riparian zone and keeping mountain bike trails and bike densities in the uplands outside the Wild and Scenic River corridor.

Designating a new trail system could create added human disturbance in areas where use is currently low. Disturbance from the new trail would be localized and the amount of trails would be reduced by over 1 mile from the existing condition. Under the proposed action, 3.9 miles of trails would be designated within the project area. The Zone of Influence for the trail would be approximately 38 acres however as discussed above, however habitat will not be degraded This is approximately 1% of the project area.

By managing the currently uncontrolled dispersed recreation, Alternative 2 would change the distribution of use in the project area, leading recreationists out of the most sensitive resource areas, and provide a stable non-motorized system trail to manage the increasing recreational demand as the community grows. By closing 4.1 miles and decommissioning 6.2 miles of road in and adjacent to the project area, overall human disturbance to the area will be reduced.

No mountain bikes would be allowed on the new creek side trail. Most of the 2.9 miles of mountain bike trail would be located outside the Wild and Scenic Corridor to allow bikers to travel from the Peterson Ridge Trail to the Metolius/Windigo Trail. This will lessen disturbance impacts to wildlife in the corridor.

Implementation of Alternative 2 is consistent with Standards and Guides within the Whychus Wild and Scenic River Management Plan as well as the Deschutes National Forest Land and Resource Management Plan, and biological objectives outlined in the Conservation Strategies for Landbirds of the East-slope Cascades (see Appendix 1 for detailed list of standards and rationale).

The project is very small in scope and scale, disturbance to these species within their range is negligible. On average there is approximately:

- 355,744 acres of Coopers'/sharp-shinned hawk and pinyon jay habitat occur across the Deschutes National Forest. Human disturbance from the proposed action has the potential to disturb approximately 38 acres, which is approximately 0.01% of the overall habitat on the Deschutes National Forest.
- 234,469 acres of goshawk, pygmy nuthatch, and chipping sparrow habitat occur across the Deschutes National Forest. Human disturbance from the proposed action has the

potential to disturb approximately 38 acres, which is approximately 0.02% of the overall habitat on the Deschutes National Forest.

- 7390 acres of red-tailed hawk and green-tailed towhee habitat occurs across the Deschutes National Forest. Human disturbance from the proposed action has the potential to disturb approximately 38 acres, which is approximately 0.5% of the overall habitat on the Deschutes National Forest

Cumulative Impacts

The project will not remove any constituent habitat elements and there are no direct or indirect impacts associated with the project. Therefore, there are no cumulative effects.

The project will have **No Impact** to the species associated with ponderosa pine habitats. The action alternatives will not contribute to an overall downward trend of species viability for these species at the Forest level.

Alternative 3 - Less Development, Maximize Primitive Character- Direct and Indirect Impacts

There would be no direct or indirect impacts to species associated with ponderosa pine habitat within the project area. Under Alternative 3 the project does not propose to remove any constituent habitat elements for these species.

Designating a new trail system could create added human disturbance in areas where use is currently low. Disturbance from the new trail would be localized and the amount of trails would be reduced by over 3 miles from the existing condition. Under the proposed action, 2 miles of trails would be designated within the project area. The Zone of Influence for the trail would be approximately 20 acres. This is approximately 0.5% of the project area.

This alternative is a less proactive approach to managing increasing human use. As in Alternative 2, human disturbance to wildlife would be reduced by: 1) designating a sustainable system trail, 2) road closures, and 3) closure and restoration of dispersed camping areas adjacent to the riparian zone. However Alternative 3 does not address the increasing use in the project area and the two “dead end” hiking trails are likely to encourage creation of user trails where people try to continue upstream. As use increases in the future, development of additional user created trails may degrade habitat through unmanaged disturbance.

Effects of the designated mountain bike trail are the same as discussed in Alternative 2.

Implementation of Alternative 3 is consistent with Standards and Guides within the Whyhous Wild and Scenic River Management Plan as well as the Deschutes National Forest Land and Resource Management Plan, and biological objectives outlined in the Conservation Strategies for Landbirds of the East-slope Cascades (see Appendix 1 for detailed list of standards and rationale).

The project is very small in scope and scale, disturbance to these species within their range is negligible. On average there is approximately:

- 355,744 acres of Coopers’/sharp-shinned hawk and pinyon jay habitat occur across the Deschutes National Forest. Human disturbance from the proposed action has the potential to disturb approximately 20 acres, which is approximately 0.006% of the overall habitat on the Deschutes National Forest.
- 234,469 acres of goshawk, pygmy nuthatch, and chipping sparrow habitat occur across the Deschutes National Forest. Human disturbance from the proposed action has the potential to disturb approximately 20 acres, which is approximately 0.009% of the overall habitat on the Deschutes National Forest.
- 7,390 acres of red-tailed hawk and green-tailed towhee habitat occurs across the Deschutes National Forest. Human disturbance from the proposed action has the potential to disturb approximately 20 acres, which is approximately 0.3% of the overall habitat on the Deschutes National Forest.

Cumulative Effects

The project will not remove any constituent habitat elements and there are no direct or indirect impacts associated with the project. Therefore, there are no cumulative effects.

The project will have **No Impact** to the species associated with ponderosa pine habitats.

The action alternatives will not contribute to an overall downward trend of species viability for these species at the Forest level.

Species Associated with Riparian Habitat and Whychus Creek

Existing Condition

Waterfowl (MIS)

(Canada Goose/Mallard Duck) Nature Serve State Conservation Status: S5 Apparently Secure
Open lakes, ponds, streams, rivers, and wet/dry meadows provide foraging habitat for most waterfowl species. Some species utilize large snags for nesting, while others utilize open grassy areas near the water’s edge. Most waterfowl diets consist primarily of vegetation although some animal matter (caddisflies, crustaceans, and mollusks) may be consumed (Csuti et. al 1997).

Whychus Creek provides habitat for a variety of waterfowl. Both Canada geese and mallard duck have been identified using the creek. One known Canada goose nest site occurs within the project area.

Great Blue Heron (MIS)

Nature Serve State Conservation Status: S4 Apparently Secure

The great blue heron is one of the most wide-ranging waterbirds in Oregon (Marshall et al. 2003). Highly adaptable, it is found along estuaries, streams, marshes and lakes throughout the state. Nest locations are determined by their proximity to suitable foraging habitat. Great blue herons nest in colonies within shrubs, trees and river channel markers where there is little disturbance (Marshall et al. 2003). Tree species they could utilize in the project area include

ponderosa pine, Douglas fir, and black cottonwood. While the average diameter of nest trees is 54 inches and the average height is 79 feet, they use a wide range of sizes from 18 to 72 inches in diameter and 43 to 120 feet tall (Marshall et al. 2003). They hunt shallow waters of lakes and streams, wet or dry meadows feeding on fish, amphibians, aquatic invertebrates, reptiles, mammals and birds. They are very sensitive to disturbance, especially during the nesting season. (Jackman and Scott 1975).

Although heron rookeries occur on the Sisters Ranger District, no rookeries occur within the project area. The project area provides foraging habitat for heron.

Environmental Consequences

Alternative 1 - No Action Alternative

The current condition and trend will continue with the No Action Alternative. Continued disturbance and its contribution to habitat degradation from motor vehicles as well as from user trails and vandalism at dispersed camp sites could disturb riparian dependent species and species that utilize Whychus Creek. Unmanaged dispersed recreation would create access points to the creek, degrading the riparian vegetation in the high use areas, which provides cover for waterfowl species in the Whychus Creek corridor. There are approximately 17 acres of sensitive riparian habitat associated with Whychus Creek within the project area. The users trails Zone of Influence overlaps riparian habitat on approximately 4.1 acres which equates to approximately 24% of the riparian habitat within the project area.

Alternative 2 - Proposed Action- Direct and Indirect Impacts

There would be no direct or indirect impacts to waterfowl or blue heron as a result of the proposed action. The project does not propose the removal of any constituent habitat elements for these species.

Under the Proposed Action, the project would move trails away from riparian habitat reducing riparian/trail interactions. However, although the trail tread does not enter riparian habitat, due to topography and the constrained possibilities for where to locate portions of the trail, the trails Zone of Influence occasionally overlaps the riparian habitat.

Under Alternative 2, the project would move trails away from riparian habitat reducing riparian/trail interactions. The overall acres of riparian habitat affected by trails Zone of Influence would be reduced by 0.5 acres from the existing condition to 3.6 acres, reducing the overall intersection of the Zone of Influence with riparian vegetation to 20% of the habitat dominated by riparian vegetation.

Designating a designed trail would be beneficial by moving access away from the riparian zone and the creek and keeping mountain bike trails in the uplands outside the Wild and Scenic river corridor. The proposed action would redesign a major user trail locally called "Brad's Trail" from Road 900 to the overlook as well as trails along the lower portion beginning around the gauging station. Reducing the amount of use and dispersed camping in the Rd 900 area would allow animals to move more freely through the area to the water in the evening after day users leave.

The proposed action would provide a sustainable trail system and is proactive in managing the expected increased use of the area by the public into the future. Designated trails allow the Forest Service to control access to the creek, reducing impacts to riparian habitat to provide optimum use by wildlife species such as waterfowl that are associated with the creek.

Implementation of Alternative 2 is consistent with Standards and Guides within the Whychus Wild and Scenic River Management Plan as well as the Deschutes National Forest Land and Resource Management Plan (see Appendix 1 for detailed list of standards and rationale).

The project is very small in scope and scale, disturbance to these species within their range is negligible. On average there is approximately:

- 94,698 acres of waterfowl and blue heron habitat occur across the Deschutes National Forest. Human disturbance from the proposed action has the potential to disturb approximately 3.6 acres, which is approximately 0.004% of the overall habitat on the Deschutes National Forest.

Cumulative Impacts

The project would not remove any constituent habitat elements and therefore are no direct or indirect impacts. Therefore there are no cumulative effects to waterfowl as a result of the proposed action. The action alternatives will not contribute to an overall downward trend of species viability for these species at the Forest level.

Alternative 3 - Less Development, Maximize Primitive Character- Direct and Indirect Impacts

There would be no direct or indirect impacts to waterfowl or blue heron. Under Alternative 3 the project does not propose to remove any constituent habitat elements for waterfowl or blue heron.

Under Alternative 3, the project would create fewer trails, reducing riparian/trail interactions. The overall acres of riparian habitat affected by trails would be reduced by 1.1 acres from the existing condition to 2.5 acres, reducing the overall intersection of the Zone of Influence with riparian vegetation to 14.7% of habitat dominated by riparian vegetation.

Removing dispersed camping entirely from the Rd 900 area would allow animals to move more freely through the area to the water in the evening after day users leave.

This alternative is a less proactive approach to managing increasing human use. As in Alternative 2, human disturbance to wildlife would be reduced by: 1) designating a sustainable system trail, 2) road closures, and 3) closure and restoration of dispersed camping areas adjacent to the riparian zone. However, Alternative 3 does not address the increasing use in the project area and the two “dead end” hiking trails are likely to encourage creation of user trails where people try to continue upstream. As use increases in the future, development of additional user created trails may degrade habitat through unmanaged disturbance.

Implementation of Alternative 3 is consistent with Standards and Guides within the Whychus Wild and Scenic River Management Plan as well as the Deschutes National Forest Land and Resource Management Plan (see Appendix 1 for detailed list of standards and rationale).

The project is very small in scope and scale, disturbance to these species within their range is negligible. On average there is approximately:

- 94,698 acres of waterfowl and blue heron habitat occur across the Deschutes National Forest. Human disturbance from the proposed action has the potential to disturb approximately 2.5 acres, which is approximately .003% of the overall habitat on the Deschutes National Forest.

Cumulative Effects

The project would not remove any constituent habitat elements and therefore there are no direct or indirect impacts and no cumulative impacts to waterfowl or riparian dependent species.

The action alternatives will not contribute to an overall downward trend of species viability for these species at the Forest level.

Big Game (MIS)

Deer

Nature Serve State Conservation Status: S5 Secure

There is one management allocation for managing deer habitat in the Deschutes National Forest Land and Resource Management Plan (DLRMP) –MA-7 (Transition and Winter Range)(USFS 1990). In addition, a biological winter, transition and summer range map was developed by Oregon Department of Fish and Wildlife (ODFW) that is referenced but is not considered an official allocation in the Deschutes National Forest Land and Resource Management Plan. Summer range has specific standards and guidelines in the Deschutes National Forest Land and Resource Management Plan but is not a specific allocation. The goal for managing MA-7 is to manage vegetation to provide optimum habitat conditions on deer winter and transition ranges while providing for some livestock forage, wood products, visual quality, and recreation opportunities.

The Whychus Wild and Scenic River plan includes specific standards and guidelines to protect deer which are discussed in the beginning of this report and in Appendix 1. The project area is considered biological winter/transition range and provides habitat to migrating mule deer during fall and spring migration to and from summer range and winter range. Mule Deer throughout Central Oregon annually migrate from high elevation to low elevation and back again, strongly depending upon visual cues provided by geographic formations. The Whychus Creek Drainage and Peterson Ridge, both provide a geographic formation that the deer follow out of the high country to winter range. In the spring the riparian habitat within the project area provides high value forage for deer with new fawns. In addition the riparian zone's dense shrubs also provide fawns with security cover to avoid predation while their mother is away foraging.

Elk

Nature Serve State Conservation Status: S5 Apparently Secure

The Deschutes NF has one primary allocation for the management of elk habitat on forest in addition to forest-wide standards and guidelines for vegetation management called a Key Elk Habitat Area. There is no Key Elk Habitat Area within the project area. Although there is no

Key Elk Habitat Area associated with the project area, elk are known to move through the project area utilizing the forage habitat the area provides. Elk were fairly uncommon over the last 30 years in this area of the Sisters Ranger District, but due to the urbanization of the greater Sisters areas in the last 20 years, many small agriculture lands S.E. of Sisters have been developed providing water and forage to elk. As a result elk have become more common to areas within and adjacent to the project area.

Road Densities

The Deschutes National Forest Land and Resource Management Plan has set desired road densities for MA-7, Key Elk Habitat Areas, and general summer range areas. Deschutes National Forest Land and Resource Management Plan target road densities for the MA-7 are 1.0-2.5 miles/sq. mile. Target road densities for Key Elk Habitat Areas are much lower ranging from 0.5 to 1.5 miles/sq. mile. There are no Key Elk Habitat Areas associated with the project area.

There are currently 227 miles of system roads within the subwatersheds which enclose the project area (Upper Whychus creek, Headwaters Whychus creek). The road density over 41,070 acres (or 64 sq miles) in the two subwatersheds is 3.5 miles/square mile. There are 32.8 miles of open system roads in the project area as well as 1.1 miles of user created roads. The density of system roads in the 3,655 acre (or 5.7 square mile) project area is 5.8 miles/square mile.

Environmental Consequences

Alternative 1 - No Action Alternative

The current condition and trend would continue with the No Action Alternative. Continued disturbance and its contribution to habitat degradation from motor vehicles as well as vandalism at dispersed camp sites would continue to displace both deer and elk as they move through the project area. Unmanaged dispersed recreation would create access points to the creek, degrading the riparian vegetation in the high use areas, limiting the availability of forage and cover.

Road densities would continue to exceed recommendations. There are approximately 5.8 miles/square mile of open road within the project area, which does not include user created roads. There are 5 miles of user created trails, within the project area. The Zone of Influence for these user trails would be approximately 49 acres. This is approximately 1.3% of the project area.

Alternative 2 - Proposed Action- Direct and Indirect Impacts

There would be no direct or indirect adverse impacts to big game as a result of the proposed action. The project does not propose the removal of any constituent habitat elements for deer and elk. A reduction in disturbance would occur from both road closures and closing dispersed camping areas adjacent to habitat. Designating non-motorized trail systems could also be beneficial, by moving user created trails away from the riparian zone which provide high value forage and keeping mountain bike trails in the uplands outside the wild and scenic corridor.

The proposed action would reduce road densities from 5.8 miles per square mile to 4 miles per square mile. Closing and decommissioning roads would reduce human disturbance to the area and assist with reclaiming vegetation, increasing habitat availability. This is a beneficial effect.

Designating a new trail system could create human disturbance in areas where use is currently low. Disturbance from the new trail would be localized and the amount of trails would be reduced by over 1 mile from the existing condition. Under the proposed action, 4.07 miles of trails would be designated within the project area. The Zone of Influence for the trail would be approximately 38 acres however as discussed above, however habitat will not be degraded. This is approximately 1% of the project area.

Designated trails allow the Forest Service to control access to the creek and monitor conditions more easily, reducing impacts to riparian habitat to provide optimum use by deer and other wildlife. The project does not pose a barrier to deer migrating through the area. As a result of topography, terrain, vegetative cover, and through habituation, ungulates will continue to use the project area.

Implementation of Alternative 2 is consistent with Standards and Guides within the Whychus Wild and Scenic River Management Plan as well as the Deschutes National Forest Land and Resource Management Plan (see Appendix 1 for detailed list of standards and rationale).

The project is associated with the Tumalo Mule Deer Winter Range. The winter range area is approximately 17,000 acres. Consultation with the Oregon Department of Fish and Wildlife was initiated to discuss the potential for impacts from the project that could disturb Mule Deer associated with the Tumalo Winter Range (Corey Heath, 2011. Personal Communication). Heath commented that the deer migration associated with the project area varies from year to year and migration routes can change annually up to 2 - 3 miles. In his opinion the disturbance from designated recreation trails would not create a barrier to migration, or preclude seasonal use of the area by mule deer. Additionally, Heath commented that proposed motorized road closures would enhance the use of the area by migrating mule deer. Heath agreed that with the strategy of limiting recreation development in the upper Whychus Creek Wild and Scenic Corridor, it was important to control user created disturbance in the lower corridor to maintain the integrity of the wildlife habitat that exists.

The project is very small in scope and scale, and the disturbance to deer within their range would be negligible. Human disturbance from the proposed action has the potential to disturb approximately 38 acres, which is approximately 0.2% of the overall Tumalo Winter Range habitat on the Deschutes National Forest.

Cumulative Impacts

This alternative would not cause any direct or indirect impacts and therefore there are no cumulative impacts to deer and elk habitat or populations.

The action alternatives will not contribute to an overall downward trend of species viability for these species at the Forest level.

Alternative 3 - Less Development, Maximize Primitive Character-- Direct and Indirect Impacts

There would be no direct or indirect adverse impacts to deer and elk within the project area. Under Alternative 3 the project does not propose to remove any constituent habitat elements for these species.

The effects of road closures would be the same as Alternative 2 except 0.5 miles more road closures would occur with the gating of Rd 880. Removing dispersed camping from the Rd 900 area would allow animals to move more freely through the area to the water in the evening after day users leave. This alternative action would reduce road densities from 5.8 miles per square mile to 4 miles per square mile. Closing and decommissioning roads would reduce human disturbance to the area and assist with reclaiming vegetation, increasing habitat availability. This is a beneficial effect.

Designating a new trail system could create human disturbance in areas where use is currently low. Disturbance from the new trail would be localized and the amount of trails would be reduced by over 4 miles from the existing condition. Under the proposed action, 2 miles of trails would be designated within the project area. The Zone of Influence for the trail would be approximately 20 acres. This is approximately 0.5% of the project area.

This alternative is a less proactive approach to managing increasing human use. As in Alternative 2, human disturbance to wildlife would be reduced by: 1) designating a sustainable system trail, 2) road closures, and 3) closure and restoration of dispersed camping areas adjacent to the riparian zone. However Alternative 3 does not address the increasing use in the project area and the two “dead end” hiking trails are likely to encourage creation of user trails where people try to continue upstream. As use increases in the future, development of additional user created trails may degrade habitat through unmanaged disturbance. As unmanaged disturbance continues adjacent to riparian areas it could potentially limit habitat effectiveness for deer in the future.

Effects of the designated mountain bike trail are the same as discussed in Alternative 2.

Implementation of Alternative 3 is consistent with Standards and Guides within the Whychus Wild and Scenic River Management Plan as well as the Deschutes National Forest Land and Resource Management Plan (see Appendix 1 for detailed list of standards and rationale).

The project is associated with the Tumalo Mule Deer Winter Range. The winter range area is approximately 17,000 acres. See discussion under Alternative 2 above regarding consultation with the Oregon Department of Fish and Wildlife regarding impacts of the project to deer using the Tumalo Deer Winter range. The project is very small in scope and scale, and the disturbance to deer within their range would be negligible. Human disturbance from the proposed action has the potential to disturb approximately 20 acres, which is approximately 0.12% of the overall Tumalo Winter Range habitat on the Deschutes National Forest.

Cumulative Effects

This alternative will not cause any direct or indirect adverse impacts and therefore there are no cumulative impacts to deer and elk habitat or populations.

The action alternatives will not contribute to an overall downward trend of species viability for these species at the Forest level.

Ecology/Botany

A Biological Evaluation (BE) describing the effects to threatened, endangered and sensitive (TES) plant species and an Invasive Plant Risk Assessment were completed. The following analysis is a summary of this report in the Project File (Pajutee, 2011).



Desired Future Condition

Forest types in the Whychus Wild and Scenic River corridor follow a steep elevation and moisture gradient ranging from sparse high elevation subalpine stands to dense mixed conifer stands along deep canyons to open dry ponderosa pines on broad flats. An accompanying range of natural disturbances continue to play their role in forest renewal.

Along the slopes of the river canyon, the vegetation is dominated by wet mixed conifer forests where wildfires may be variable and burn at variable intensities to create a variety of patch sizes. These forests are healthy and resilient to periodic disturbances from fire, insects, or disease. Fuel loading is at levels where periodic wildland fires may occur, but would burn at moderate to high intensities and create diversity.

Dry mixed conifer and ponderosa pine forests are maintained by frequent low intensity fires to help restore large pine and Douglas fir. These forests are healthy and resilient to periodic disturbances from fire, insects, or disease. Fuel loading is at levels where low intensity periodic wildland fires may occur, but would cause little damage. Large old growth trees are more prevalent than today. Careful forest management practices help restore desired conditions but maintain a high level of scenic integrity and natural appearance.

Riparian vegetation along stream edges and meadows exhibits high native species diversity, from grasses, to sedges, to willows, to flowering shrubs and has little conifer encroachment. Abundant dead trees and down wood provide habitat in and adjacent to the creek. Riparian areas will be functioning effectively.

Aspen and cottonwood stands are recognized as significant habitats and managed for sustainability. Rare plants such as Peck's penstemon or special habitats such as wet meadows and swamps are managed for sustainability and protected from non-native plants and recreational impacts. Invasive plants (or noxious weeds) and other undesired non-native species are rarely found. If detected, they are removed by approved methods.

Consistent Uses: The following activities proposed by the project are examples of uses that are consistent with protection of the significant Vegetation and Ecological values:

- Low impact recreation (see Recreation section for more information).
- Control of invasive plants.
- Restoration of impacted areas with native plant species.

Conflicting Uses: The significant Vegetation and Ecological Values could be adversely affected by these activities which are occurring or could occur in the project area:

- Activities which move forests, meadows, and streamsides away from the natural range of variability (see Whychus Late Successional Reserve Assessment and Whychus Watershed Analysis).



Shooting damage to old growth pine at Rd 900 campsites on Whychus Creek

Existing Condition

The Whychus Portal Project area contains several plant habitats and associations tied to elevation and precipitation gradients and proximity to water. The elevation and precipitation gradients for the Whychus Creek Wild and Scenic River corridor are recognized as one of the steepest in the region. Forest types in the Whychus Portal area are typical of many forests areas and not particularly diverse in the area of comparison. The project area contains 47 acres of Late Successional Reserves managed under the Northwest Forest Plan. Late Successional Reserves are recognized as important to maintain functional old growth and late successional forest ecosystems and the related species.

Mixed Conifer Forests

Portions of the upper project area and north facing canyon areas are a mosaic of wet and dry mixed conifer forests. Diverse types of tree species are also found along the water in moist microclimates generated by the creeks influence on humidity in areas such as steep and narrow canyons, near waterfalls, and adjacent to caves and rocky features. These moist microclimates support a variety of moisture loving mosses, lichens, and ferns in the immediate river corridor, as well as tree species such as Douglas fir, western hemlock, and lodgepole pine and remnant old growth.



Remnant old growth Douglas fir near Rd 900

Historically mixed conifer forests experienced a range of fire frequencies and fire intensities dependant on slope aspect and microclimate. Historic fire return intervals ranged between 30-50 years. As in lower elevation forests, there has been a loss of large old trees due to logging and the exclusion of fire. Acres dominated by trees over 21" dbh have decreased by 75-80%. Acres of old growth dry and wet mixed conifer forests have decreased by 63-79%. Forests are dominated by smaller average tree sizes than those that occurred historically. Acres dominated by trees between 5 - 20.9" dbh have increased by 67-74%. Exclusion of fire has increased habitat instability and vulnerability to disturbances such as insects, disease and fire. Approximately 45% of wet mixed conifer forests and 73% of dry mixed conifer forests are at unstable densities with too many small trees (USFS 2009).

Ponderosa Pine Forests



Second growth ponderosa pine forests near the gauging station

Lower elevation forests in the Scenic portion of the corridor are dominated by small ponderosa pine with stringers of mixed conifer in moist microclimates. Historically these forests were maintained in a more open condition by frequent low intensity fires every 4-25 years.



Ponderosa pine forests as seen from overlook area

Fire suppression and past logging practices have greatly reduced the historic dominance of large ponderosa pine trees over 21" dbh that once occurred. Portions of the project area outside of steeper canyons have had most large pine removed. Analysis in the Whychus Watershed Analysis and Update (USFS 1998 and 2009) indicate that acres dominated by trees over 21" dbh have decreased by 79%. Forests are dominated by smaller average tree sizes than those that occurred historically. Acres dominated by trees between 5 - 20.9" dbh have increased by 81%. Exclusion of fire has increased habitat instability and vulnerability to disturbances such as insects, diseases like mistletoe, and fire. Approximately 64% of pine forests are at unstable densities with too many small trees. Mistletoe is prevalent in many smaller trees and is affecting tree growth patterns by creating small bush-like trees. Fire suppression and harvest have also reduced the quantity and quality of open ponderosa pine forest habitats which support plant species like the rare Peck's penstemon wildflower, and wildlife including white-headed woodpeckers, and the northern goshawk (USFS 1998 and 2009).

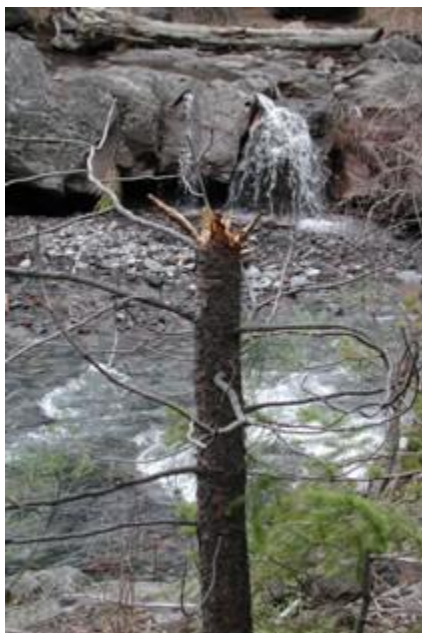
Remnant old growth ponderosa pine and Douglas fir trees survive in inaccessible streamside areas where logging was limited. Historically, periodic fire was an important disturbance agent in the river corridor and surrounding forests. Streamside areas may have burned at lower intensities or more infrequently, but fire was certainly a frequent event every 1-35 years and most large old trees near the stream bear fire scars.

Riparian Habitats



Floodplain riparian area impacted by camping

There are a variety of riparian plant associations along the creek which include shrubs such as spirea, red osier dogwood, and willow and a variety of wildflowers, sedges, and grasses. Stringers of hardwood trees such as aspen and cottonwoods are found near the stream in a few locations and are significant habitats that are recognized to be in decline across the region. Natural disturbances such as fire, flooding and beaver activity which rejuvenate riparian habitats have been reduced by human intervention.



Tree which has been repeated shot until its top snapped off near Whychus House Cave

This has affected the vigor of streamside trees and shrubs. This has also caused a

decline in aspen trees. Riparian habitats have been also been degraded by camping, illegal tree cutting, fire suppression and logging. Less than 1% of the Whychus watershed has riparian areas dominated by large trees. There is less down wood and large live and dead trees in riparian areas due to past logging and this reduces its habitat value for plants, wildlife and fish (USFS 1998 and 2009).

Riparian habitats are key habitats for many wildlife species. Approximately 200 species found or suspected to occur on Sisters Ranger District use riparian for breeding, roosting or foraging (USFS 1998).

Riparian habitats in the project area are narrow, with riparian species often found within 5-15 feet from the stream edge. Floodplain areas have are wider extents of riparian species. Excessive recreational use can cause trampling, devegetation, introduce invasive plant species and change species composition. Several of these broad areas near the stream are being damaged by dispersed camping which causes vegetation to recede and numbers of streamside trees are

being cut or injured by illegal tree cutting, chopping, or shooting.

Cattle, sheep or horse grazing occurred historically along the river corridor including near the proposed overlook location. Old barbed wire fences in the area have recently been removed to protect wildlife. There are no grazing allotments in the project area.

Sensitive Plant Species

No threatened or endangered plant species have been found in the corridor.

Peck's penstemon There is one sensitive plant species in the project area, Peck's penstemon (*Penstemon peckii*). This rare endemic wildflower is classified as "sensitive" on the Regional Forester's Sensitive Plant List. It is found only on approximately 485 square miles centered around Black Butte on the Sisters Ranger District. Most known populations are on National Forest Lands.

The one population of Peck's penstemon in the project area is in an ephemeral drainage of Whychus Creek next to a road and is the southernmost population in the plant's global range. Populations on the edge of the plant's range are particularly important to the viability of the species because they may contain important genetic variation. This population is managed as "Protected" which means only management actions known to benefit the plant would be allowed.



Peck's penstemon is an indicator of fire maintained habitats, including open canopy patch patterns, meadows, and the integrity of seasonally moist habitats or channels. It is closely associated with pine-dominated, open-canopied forests with early seral understories. These habitats were historically maintained by a low intensity fire regime. The plant has wide genetic amplitude and can be found persisting in a variety of habitats, including early seral habitats such as plantations, skid trails, and roadsides. It often occurs in high water table areas or in intermittent and ephemeral stream channels.

The Peck's Penstemon Species Conservation Strategy Update (Pajutee 2009) identifies the five most important abiotic and biotic variables involved in the plant's viability as abundant moisture, light (required for flowering), abundant pollinators, periodic fire, and flooding (seed dispersal).

Exclusion of fire from pine and dry mixed conifer forests has been the biggest factor in reducing habitat quality for the plant. Severe ground disturbance can uproot plants and destroy populations. Timber harvest is a threat to penstemon populations when the type of the treatment involves heavy soil disturbance, heavy fuels are left behind the treatment, the timing of the treatment ignores the condition of the population and plant phenology or when a majority of the plants are not preserved during the treatment. The potential for introduction of invasive plants on logging equipment or support vehicles and the spread of existing invasive plants into newly disturbed areas is also a risk.

It is the hypothesis of Peck's Penstemon Species Conservation Strategy Update (Pajutee 2009) that heavy ground disturbance in penstemon populations that are under closed canopy conditions before treatment may fragment or permanently destroy the population because the soil seed bank is low and conditions that allow successful germination and seedling survival may be rare. The

population in the Whychus Wild and Scenic River area meets these criteria in that it is under a closed canopy and has minimal flowering.

Timber harvest activities which occur before yearly seed dispersal may lower the recovery rate of the population if slash is not cleaned up. This is because there are known chemical inhibitors for Peck's penstemon seed germination in pine needle litter slash left behind timber harvest. This indicates slash from timber harvest activities should be burned or removed to benefit the plant. However, not all timber harvest has resulted in loss of penstemon plants or populations. When parent plants are not uprooted, the species has been observed reseeding and proliferating in adjacent bare soil areas and skid trails. It is speculated that silvicultural treatments which open closed canopies, reduce soil litter, reduce vegetative competition, and retain penstemon parent plants will benefit the species in forested habitats

The Botanical Report for the Whychus Late Successional Reserve Update (Pajutee 2009) lists the following recommendations for this population of Peck's penstemon. Additional guidelines can be found in that report:

- Consider allowing fires to burn through the Peck's penstemon population area and potential habitats for resource benefit.
- Avoid fireline, safety zones, or equipment in population areas.
- Consider hand thinning and prescribed fire in the population area to increase flowering.
- Do not burn concentrations of slash on top of population.

Invasive Plant Species

The interior of the project area is relatively free of invasive species. Invasive plants such as diffuse knapweed and dalmatian toadflax are found in low levels scattered along roads adjacent to or leading to the creek including Road 16 and along the creek edges below the Wild and Scenic River boundary. Management activities that open stands, such as thinning and prescribed fire, have a risk of creating more habitats for weed invasion. Invasive plant seeds are also transported and can enter the area through vehicles and bikes (in tire treads or caked mud), in hay or in horse manure. Materials used in parking area or trail construction such as gravels or crushed rock can also be a source of invasive plant seed.

Environmental Consequences

Analysis Issue: Too much or too little development will affect the Significant Ecological and Botanical Values.

Measures:

- ✓ *Risk to Peck's penstemon (invasive plant introduction)*
- ✓ *Acres of native plant habitat restored.*
- ✓ *Miles of roads decommissioned and restored*
- ✓ *Risk of invasive plant introduction and spread*

Alternative 1 -No Action

Riparian habitats will continue to be impacted by dispersed camping and motorized and nonmotorized use where people damage streamside areas through trampling, campfires, illegal tree cutting, and damaging trees through shooting and chopping.

This alternative poses the greatest risk to the population of Peck's penstemon which will remain more vulnerable to disturbance from vehicles from the open road and invasive plant seed introduction from vehicles, horses or bikes.

This alternative poses the greatest risk of invasive plant introduction along open roads, user trails which are not regularly monitored, and from continues disturbance from unmanaged use.

Alternative 2 -Proposed Action- Direct and Indirect Effects

There will be beneficial effects to riparian habitats from management controls and reduction of dispersed camping and motorized and non-motorized use, and restoration.

Restoration activities using native plants have the highest chance of success under this alternative because of the length and design of the managed trail system is predicted to occupy and divert most users and not create a situation where users continually impact recovering areas by creating more user trails.

This alternative reduces risk to the population of Peck's penstemon by closing the adjacent road although some risk will remain from invasive plant seed introduction from vehicles, horses or bikes. Monitoring is required.

This alternative poses the lowest risk of invasive plant introduction along open roads and system trails which can be monitored more regularly.

Alternative 3 - Less Development, Maximize Primitive Character- Direct and Indirect Effects

There will be beneficial effects to riparian habitats from management controls and reduction of dispersed camping and motorized and non-motorized use, and restoration. There is a higher risk of user trail development from the end points of trails.

Restoration activities using native plants have a lower chance of success under this alternative than under Alternative 2 because of the length and design of the managed trail system is not expected to occupy and divert most users and is likely to create a situation where users continually impact recovering areas by creating more user trails.

This alternative reduces risk to the population of Peck's penstemon by closing the adjacent road although some risk will remain from invasive plant seed introduction from vehicles, horses or bikes. Monitoring is required.

This alternative poses a greater risk of invasive plant introduction than Alternative 2 because more user trails are predicted which are more difficult to monitor regularly.

Alternative 2 and 3- Cumulative Effects

Past management which has affected vegetation in the cumulative effects analysis area (the Whychus Watershed) over the past 100 years includes: timber harvest, livestock use, big game grazing, fire suppression, wildfires, unmanaged recreation, stream restoration, road closures, and trail and road construction. Timber harvest has removed the majority of large trees in accessible areas and fire suppression has caused forests to become more dense and sometimes diseased with mistletoe or insects outbreaks. Fire suppression has also reduced habitat quality for rare species such as Peck's penstemon, affected riparian species diversity, and reduced the size of meadows.

Few wildfires and little vegetation management have occurred in the cumulative effects analysis area in the past 15 years. Ongoing and foreseeable actions in the next 5 years focus on restoring forest conditions by thinning smaller trees and reintroducing fire. These include the Sisters Area Fuels Reduction Project (SAFR) approved in 2009 and the Popper Vegetation Management Project, currently being planned which would result in more sustainable forest condition in the long term. These activities have the risk of introducing invasive plants and mitigations are required.

Invasive Plant Control on public lands through the Deschutes/Ochoco Invasive Plant program is also a foreseeable future actions which should benefit vegetation by reducing large populations of invasive weeds along roads and waterways in the analysis area and allowing reestablishment of native wildflowers and grasses.

Recent Forest Service streamside restoration activities within the cumulative effects analysis area have begun to improve riparian and forest condition by reducing riparian trampling and devegetation, by defining access and closing streamfords at 59 sites along Whychus Creek. Increased management controls in riparian areas, roads and trails, along with revegetation of unneeded roads with native plants under both action alternatives would combine with other efforts of streamside and forest restoration in the watershed to cumulatively improve vegetative conditions and native plant habitat quality by restoring habitat and reducing impacts from unmanaged recreation.

Recreation



Viewpoint on Whychus Creek

A Recreation Report was completed. The following analysis is a summary of this report in the Project File (Moscoso, L. et.al., 2011).

Desired Future Condition

Whychus Creek's wild and remote character is valued, considered, and actively protected as a theme in future planning. It will remain a place where people can explore and experience the excitement of discovery and self reliance. Opportunities for primitive and semi-primitive recreation experiences associated with enjoying the water, forests and mountain views emphasize hiking, wildlife watching, dispersed camping, hunting, and fishing. Trails for equestrians, mountain bikers, and snowmobiles will enter and cross the corridor in certain areas. It will be easier for responsible users to enjoy the area and harder for people who have abused the area in the past to continue destructive behaviors.

There would be a gradient of management controls so areas closer to the City of Sisters would provide more facilities to manage use and higher reaches closer to the wilderness would provide fewer facilities. The plan would allow development of limited improvements (parking areas, system trails, restrooms) close to the City of Sisters to manage use to protect river values and provide interpretive and stewardship information.

Recreational Opportunity Spectrum (ROS) The Scenic section of the river is managed within the Recreation Opportunity Spectrum (ROS) characterization of a "Semi-Primitive Motorized River".

Low Impact Recreation Low impact recreational practices protect Outstandingly Remarkable Values. Low impact dispersed camping avoids tree damage or vegetation loss, and low impact

trail users protect trails from excessive erosion. Low impact recreation protects recreational experiences and environmental quality by encouraging respect for others, limiting group sizes, and using proper sanitation and litter disposal. Motorized travel is kept to designated routes. The concepts of low impact recreational practices are discussed in Cole 1989.

River Trails A managed river trail will lay lightly on the landscape to provide a high quality hiking experience that is protective of riparian values, wildlife refugia, and scenery. Networks of braided user trails are rehabilitated. Mountain bikers, equestrians, and snowmobile users will be able to pass through the corridor to connect to trails systems such as the Metolius/Windigo Trail, the Peterson Ridge Mountain Bike Trail, or the Cross District Snowmobile Trail. Trails will consider community connections and logical links to other existing trails to make it easier for people to enter or pass through the corridor from town by foot, bicycle, horse, snowmobile, as well as by car on open roads. Primitive roads provide access points to the river. The most logical trail corridors in some places may exist on canyon rims above the creek where views can be enjoyed, or on existing unneeded roads that could be converted to trails.

Vehicles, including off-highway vehicles will remain on designated routes and enforcement of the Travel Management Rule is effective. People limit the noise from vehicles in dispersed camping areas shared by others by traveling at slow speeds.

Dispersed Camping People continue to enjoy dispersed camping and camps are clean, soil erosion and runoff to the creek is minimized, and proper sanitation practices are followed. Low impact “Leave No Trace” camping techniques are communicated and followed.

Recreational Development A few strategically placed recreational developments such as parking areas, restrooms, educational displays, and maintained trails will allow people to enjoy the Wild and Scenic River but will defer to and protect or enhance the river’s Outstandingly Remarkable Resource Values. Parking areas may be visible from Road 16 for security, but constructed with natural rocks and native plantings. A modest, fully accessible portal area close to the City of Sisters could provide a place to view the corridor, enjoy the mountain scenery, learn about river values and philosophy, and take a walk or connect to a longer hike.

Stewardship and Volunteerism People’s experiences on Whychus Creek will be part of a sustainable public stewardship program. Volunteerism, stewardship and service to public lands will be a part of the community culture. People of all ages will help take care of the river and value the unique experience Whychus Creek provides. The community will be known for its creative approaches to public lands stewardship.

Roads The road system provides access to some portions of Whychus Creek corridor for recreation opportunities, driving for pleasure, forest management, and effective fire-fighting capability; yet most of the corridor remains unroaded or has a very low road density in order to reduce the risk of water quality degradation occurring from roads, provide primitive and semi-primitive self discovery experiences, and provide the highest possible wildlife habitat effectiveness. The roads that remain open for access in the corridor are maintained to provide managed public access and prevent resource damage.

Trail Bridges Trail bridges which fit the areas primitive character may be built if they protect river values, can withstand Whychus Creek’s winter flood events, and meet management direction for Riparian Reserves or Riparian Habitat Conservation Areas.

Fixed improvements Fixed improvements protect the health and safety of public, protect or enhance river values, fulfill an agency management and administrative role, or involve the study or research of values unique to Whychus Creek.

Sustainable Recreation Program Proposed new activities or developments consider the environmental, social, and economic factors that influence the creek's outstandingly remarkable and significant resource values. By working with the community, visitors, and partners the area will be able to continue to provide the mental and physical benefits of outdoor recreation while protecting and enhancing the creek's resource values for future generations.

Whychus Creek will provide a much needed sanctuary for people; a place for rejuvenation, reflection, education, and opportunities to give back in the form of public lands stewardship. Community engagement will help conserve the natural setting. The fiscal viability of decisions and investments consider the economic contribution to the community and tourism as well as capacity and sustainability.

***Consistent Uses* The following activities proposed by the project are examples of uses that are consistent with protection of the Significant Recreation Resource Value and the Outstandingly Remarkable Resource Values:**

- Opportunities for primitive or semi-primitive experiences which involve low impact recreation as discussed above.
- Horseback riding and mountain biking on system trails that cross the corridor, including the Metolius/Windigo Trail.
- Management regulations or modest recreational facilities (such as parking areas or trails) which protect Outstandingly Remarkable Resource Values and wildlife refugia.
- Dispersed camping in allowed sites. Campsites are designated, rested, or decommissioned as needed.
- Road closures or obliterations for resource protection or to reduce vandalism.
- Converting roads to trails.
- Motorized access on designated routes.
- Fixed improvements which respond to a demonstrated need for health and safety of public, protect or enhance river values, fulfill an agency management and administrative role, involve the study or research of values unique to Whychus.
- Low key signing, off site interpretation, on-site interpretation that is consistent with the area's desired character.

***Conflicting Uses:* The Significant Recreation Resource value and Rivers Outstanding Remarkable Resource Values could be adversely affected by these activities which are occurring or could occur in the project area:**

- Recreational developments which cause use to increase beyond desired social setting throughout the corridor.
- Unmanaged use which causes resource damage to Outstandingly Remarkable Resource Values.
- Installing new trails that adversely impact riparian areas, cultural sites, unstable areas or erosive soils, or wildlife refugia.
- Dispersed camping or campfires that adversely impact sensitive sites or Outstandingly Remarkable Resource Values.

- Uninformed, unskilled, or careless practices while camping (in camp location, excessive size and number of campfire rings, improper sanitation, illegal firewood cutting, leaving trash, excessive noise, and vandalism).
- Uninformed, unskilled, or careless practices while hiking or parking (parking in vegetation, improper sanitation, leaving trash, creating user trails, and vandalism).
- Illegal or undesirable behaviors such as building unauthorized roads or trails, shooting trees, graffiti, leaving trash, cutting live or dead standing trees outside firewood cutting areas, or vandalism.
- Over promoting or advertising the area causing increasing use beyond desired social settings.
- Too many signs, or lack of consistency and quality in signing which detracts from the visual quality and the near natural or natural setting.

Existing Condition

Whychus Creek's primitive character is recognized as unusual on the Sisters Ranger District and the Deschutes National Forest. Recreational developments on the creek such as trails and campgrounds were avoided because of the risk of a flood from a breach of the Carver Lake glacial moraine dam. This acted to preserve the primitive character of the creek and has made it more difficult to access than many other waterways on the Forest. The risk of a Carver Lake dam breach has since been downgraded(see Hydrology).

The creek and its environment provide an opportunity for quieter, reflective experiences in a wild setting that provides for self- discovery outdoor activities. The creek's recreational values were rated as Significant but not Outstandingly Remarkable because although the area does provide for a variety of recreation experiences, it does so in a way that is not as prominent as in other Wild and Scenic Rivers in the Region and it generally does not attract visitors from outside the region, unlike rivers like the Metolius. This may change as Central Oregon grows and the area is discovered.

During Whychus Wild and Scenic River Management Planning both public and Tribal comments expressed concern that recreation use levels could increase and impacts of unmanaged use would grow. People recommended not over promoting or over developing the area with recreation facilities but providing facilities primarily for resource protection and low impact uses. Increased enforcement, volunteer stewardship, and management would help address the effects of increased population growth and use.



Hikers enjoying the overlook area –
park bench was installed by users

Before the completion of the Whychus Creek Wild and Scenic River Management Plan several sporting and social events authorized by special use permits occurred in the corridor, partly on non-system user created trails, and brought hundreds of people at a time through the area. New standards and guidelines restrict where events may enter or cross the river corridor.

Primary recreation uses in the project area include: dispersed camping, rock climbing, some fishing, and use by hikers, runners, equestrians, and mountain bikers on user created trails and the two system trails. Community partners such as the Sisters Trails Alliance, Central Oregon Rocks, INC, and the National Forest Foundation Community volunteer bank assist in education, monitoring trail use, and area stewardship.

Population Growth and Unmanaged Use

In the past decade, unmanaged, careless, and illegal uses in the Whychus Creek Wild and Scenic River area and especially in the Whychus Portal Project area have accelerated with population growth. The populations of Sisters and Deschutes County have increased greatly in the past decade and continue to grow.

In 1990, 708 people lived in Sisters and in 2008 that increased to 1,910. Population growth rates have varied from a high of 32% increase in 2003 to 4.7% increase in 2008. In addition 6-10,000 people live in subdivisions near Sisters. There are an additional 900 undeveloped platted lots in Sisters. Deschutes County continues to grow at a faster rate than other Oregon counties, having the highest percent change from 2007-2008 of any county in Oregon; and having the third largest population change, behind only Washington and Multnomah counties. In 1990 the population was 74,958 and in 2008 it was estimated at 167,051 (Porter, 2009).

The project area is near the City of Sisters and has been subject to repeated vandalism including dumping, shooting trees and wildlife, partying and leaving trash, graffiti, and creation of illegal roads and trails. Some restoration closures have been breeched and educational signs removed, defaced or destroyed. A wildfire was started at the end of Rd 442 and abandoned campfires are often found. More aspects of unmanaged use are discussed in sections below.

Because of its proximity to town and road access, areas immediately downstream of the hydrologic gauging station area are frequently used by people who reside in the forest (live in the forest). They often abandon their camps, leave garbage, illegally cut trees, and do not use proper sanitation practices for human waste. Law enforcement officials removed two abandoned streamside camps in 2010 and made frequent contacts with other residents who were asked to keep clean camps and move after the permitted 14 days.

Public comments during the Whychus Creek Wild and Scenic River Management Plan process recognized that the area needs more management and some developed facilities, especially with its proximity to the city, because people are building their own trails and creating networks of



Graffiti at Cultural Site



Abandoned Resider Structure on Whychus Creek

user trails. Some felt that making the area more accessible for low impact, responsible users would help monitor and displace irresponsible users. Off Highway Vehicle use is also increasing, with more user trails, breaching of restoration closures, and damage to resources.

Trails

There are two existing system trails in the project area: 1) the Metolius/Windigo Trail which crosses the middle of the project area and 2) the Three Creeks Road/Metolius/Windigo Connector Trail, a part of the Sisters Community Trails system. People are generally not attracted from beyond the region and use is light. The area is not frequented by the casual visitor. Some recreationists have taken matters into their own hands and built illegal trails.



Hikers on "Brads Trail"

The Peterson Ridge Mountain Bike Trail system is adjacent to the east side of the project area across Rd 16.

Popular user trails are referred to by name by users. A user-made mountain bike trail along the creek ("Brad's Trail") connects Rd 440/overlook area and the Rd 900 dispersed camping area and the Metolius/Windigo Trail crossing over Whychus Creek. It receives some mountain bike use but is more frequently used by hikers and runners. Some areas are overly steep and intersect with drainages to the creek.

Users have also created trails on the streambanks by repeated entries. Some of these trails are poorly located and unstable and causing erosion and loss of vegetation on streambanks.

"The Grunt" is a very steep user trail which descends from the overlook area and connects to "Brads Trail" and other old trails and roads below the cliffs. It is used by runners and hikers.

Rock Climbing

Rock climbing in the project area is difficult but is enjoyed by a small group of elite climbers. The major issue of concern is visible chalk marks on rock faces. Local climbers are working with the Forest Service to identify important climbing areas and access spurs and self police. They have expressed interest in area stewardship, share information about management issues, and have volunteered to assist with monitoring to prevent impacts to geological features.

Roads and Motorized Use

There is limited vehicle access into the area. Roads that access the creek are used primarily by dispersed campers, wood cutters, hunters, and for sightseeing and recreational use. There are at least 1.1 miles of user created roads. Though most roads are out of the stream corridor, some user made roads and dispersed campsites are within riparian habitat. Road closures for riparian protection are frequently breeched and signs are defaced.



Road breach- new user road near the gauging station

An interdisciplinary Road Analysis process was completed to assess resource and road conditions, and develop a set of recommendations to inform the decision-making process for the project (Walker, 2010). This Road Analysis process followed the final National Forest System Road Management Policy Rule, adopted by the Forest Service in 2001. The final rule removes the emphasis on transportation development and adds a requirement for science-based transportation analysis, consistent with changes in public demands and use of National Forest resources. The final rule is intended to help ensure construction, reconstruction, and maintenance of roads minimize adverse environmental impacts; unneeded roads are decommissioned and restoration of ecological processes are initiated; and additions to the National Forest System road network are only those deemed essential for forest resource management and use.

The main objectives of this road analysis were to:

- Identify the needed minimal transportation system to best serve the area.
- Balance the need for access with the need to minimize risks to Outstandingly Remarkable Values and Significant Values as listed in the Whychus Wild and Scenic Management Plan.

Roads which were identified for closure or decommissioning are shown in maps under the **Alternatives**.



Large devegetated camping area at Rd 900

Dispersed Camping

Currently dispersed camping is allowed and is damaging streamside and forest areas. Dispersed camping is concentrated near the gauging station at Rd 390 and Rd 370, and Rd 442, and Road 900. There are at least ten sites along the creek near the gauging station or along Rd 442. Most sites are large with devegetated areas. They are hotspots for trash dumping, parties, tree shooting, and illegal tree cutting.

The use of the Rd 900 site for very large parties of campers has increased. One 2010 Memorial Day Camping group totaled over 50 people (Roby, L. 2010. Personal Communication). Defacing and harming old growth trees with paint, swastikas, and shooting has also occurred at the Rd 900 site.

Streamside restoration activities within the cumulative effects analysis area (Whychus Watershed), like the Whychus Creek Riparian Protection Project (2005-2007) have improved visual quality by reducing riparian trampling and de-vegetation, defining access and closing stream fords at 59 sites along Whychus Creek. Areas near Rd 390 and Rd 900 were part of the project which reduced user created roads and fords and closed or pulled back dispersed camping areas at the edge of Whychus Creek to reduce sedimentation and effects to riparian areas from roads and dispersed camping. Installed boulders appear somewhat natural but in some areas they may appear negative to some viewers such as where they are numerous or where they were not buried due to cultural site concerns. Illegal breeching of these road closures is on-going in the project area at these two sites.

Sustainable Recreation and Volunteer Stewardship



Volunteers removing yard debris from a dumpsite at the gauging station on Friends of the Forest Day 2009

Interest in stewardship by partners and volunteers has greatly increased in the past decade and is essential to long-term Forest Service management of the area. Volunteer River Stewards have been monitoring the gauging station and/or the Whychus Creek House cave area for several years. Volunteers help with wilderness monitoring. Partners such as Wolfree, the Deschutes Land Trust, and the Upper Deschutes Watershed Council have played an active role in education and restoration efforts.

In 2008, the Whychus Creek and Metolius River areas were chosen by the National Forest Foundation for a major capitol conservation campaign to fund restoration, manage use, and promote volunteerism (The Tale of Two Rivers Campaign). Hundreds of people have attended the National Forest Foundations “Whychus Friends of the Forest Day” in September 2009 and 2010 to volunteer in clean-up and restoration projects on the creek. A Volunteer Bank of River Stewards is a goal of the campaign.

Environmental Consequences

Analysis Issue: Too much or too little development will affect use, primitive character, the Outstandingly Remarkable Values, and/or the Significant Recreation Resource.

Measures:

- ✓ *Acres of riparian habitat restored (restore dispersed campsites)*
- ✓ *Miles of roads and trails restored*
- ✓ *Miles of road closed*
- ✓ *Effects to “Primitive character”*
- ✓ *Recreation Experience Quality- Significant Value*
- ✓ *Facilities: # campsites, miles of trail, # parking areas, and other facilities*
- ✓ *Use = # parties expected per day*

Alternative 1 -No Action

Unmanaged use in the project area has caused at least 5 miles of user trails and 1.1 miles of user roads off Rd 370, 390, 442, and 900. Three acres of riparian habitats are devegetated by dispersed camping use. Future unmanaged use may lead to more user trails, routes and devegetation. Illegal behaviors such as dumping garbage, graffiti, firewood cutting along the creek, shooting trees, and shooting wildlife outside hunting regulations are occurring and are expected to continue even with some increased enforcement.

With the increase in recreation use and the population of Central Oregon, use of the Deschutes National Forest has increased over the last 10-20 years. This alternative would continue current management practices and policies. No actions are proposed to close, restrict, relocate, or rehabilitate dispersed camping sites or roads within the project area under this alternative. Existing sites and roads would still be utilized, including those that are causing environmental degradation or concern. Recreation opportunities would remain relatively unchanged in the short-term. The area would remain optimal for “self discovery” however the creek’s Outstandingly Remarkable Values would continue to degrade. The trend of increased unmanaged recreation use would continue and could exacerbate the behaviors and effects described above.

User trails which have been developed over many years will remain and continue to be used. Many of these are in locations which are or could lead to erosion into Whychus Creek. Most are not to standard and there are more than what is needed for the area. There would be no controls on the use of these routes implemented under this alternative.

There would be no changes made to road access in this alternative. Current use and associated impacts (erosion, vegetation degradation, scenic quality, litter) to sensitive areas (physical, social, or biological) would continue and increase as use increases.

Alternative 2 -Proposed Action- Direct and Indirect Effects

Increased management and visitor controls, where needed to protect river resources such as the defined parking areas, system trails, restrooms, overlook, and signing will change people's experience in the project area. Some users would be impacted by loss of access to some streamside camps, user trails, and roads. Others would gain access to low impact recreational opportunities offered by a trail system. Scenic and environmental quality would be improved with less dumping, sanitation issues, and restoration of trampled areas and duplicate and/or unsustainable routes. Monitoring by Forest Service and volunteers would be easier with a trail system to follow.



Enjoying the view near Rd 900 campsites

The development of system mountain bike and hiker trails would reduce impacts from the user-made trails that string up and down Whychus Creek. The proposed trails would be constructed so as not to incur erosion problems and to reduce visual impacts. These trails would provide easier access to creek for the public. The development of these trails would benefit those people that do not currently know about the user-trails that access the creek. Upland trails would provide mountain biking opportunities. For those that prefer the solitude and sense of self-discovery, these proposed trails may reduce their level of enjoyment as the increased use and formality of the trails changes the character of the existing system. Small spur trails to rock climbing areas would be improved and monitored.

Road closures would help to maintain an atmosphere that is more consistent with the recommendations of the Whychus Creek Wild & Scenic River Management Plan. The closure of Rd 440 and conversion of the road to a trail within 50 feet of the road center would provide a safer and better mountain biking opportunity for those seeking more of a single-track experience. Others who used these roads for various recreation experiences would be displaced to other areas where similar roads and access still exist. Campers who used these areas may be the most affected as existing dispersed camping areas would be converted to day use only. Other dispersed camping areas outside the project areas would remain open unless environmental damage was detected during monitoring.

Road closures will likely deter and slow some of the vandalism in the area because people will not want to hike in. Residents (people living on the National Forest) with vehicles will also likely be deterred from using the area because of a loss of easy access.

Ten dispersed campsites are proposed to be closed on the east side of the creek or on Rd 442 and camping would not be allowed here. This would restore 2.5 acres of riparian areas. The only dispersed camping would occur near the end of the Rd 900 where 1-2 walk-in tent sites would be developed. This would displace campers and residents who have traditionally used these sites. It

could result in more pressure or use on the 1-2 sites that will remain or to other areas in the Whychus area outside of this project area.



The development of accessible system trail and overlook will provide access and a safe facility for more visitors to take in a view of the Cascade Mountains who would not have known or could not have accessed the view prior to these developments. Many recreationists will appreciate the accommodations that this trail and overlook will provide. A native surface parking area defined by boulders and restroom would be provide at the start of Rd 440 which would be decommissioned and restored. These improvements would change the character of this site from a dispersed setting to a developed facility. The developments would

reduce the amount of impacts from several user-made trails that have been developed. This type of management control/development was discussed in the Whychus Creek Wild and Scenic River Management Plan as part of the gradient of management controls envisioned to manage recreational use near the city of Sisters.

To some people these improvements will deter from the natural landscape and character of the site. Similarly, the increased use of this site, due to it's being developed and subsequently signed on the road and published in maps, will affect the character of this site and the enjoyment for those users that prefer a lesser used site and more solitude. However, the majority of the Whychus Creek Wild and Scenic River corridor will remain undeveloped and open to self exploration.

Alternative 3 - Less Development, Maximize Primitive Character- Direct and Indirect Effects

This alternative would reduce motorized and foot access to manage increasing use and pressure along Whychus while maximizing the undeveloped character of the area. Trails would be removed and rehabilitated below the existing overlook. One accessible trail (non-loop) would be constructed out to the overlook. It would provide access from Road 16 to the overlook.

The development of a system trail and overlook will provide access to more users to take in a



view of the Cascade Mountains. There will be no loop trail or access down to the creek from this point as is proposed in Alternative 2 and result in more encounters. These improvements would be less of a change to the character of this site from a dispersed setting to a developed facility than Alternative 2.

The developments would still reduce the amount of impacts from several user-made trails that have been developed in the overlook area. To some people, these improvements will deter from the natural landscape and character of the site, but not to the same degree as Alternative 2. Similarly, the increased use of this site, due to it's being developed and subsequently signed on the road and published in maps, will reduce the character of this site and the enjoyment for those users that prefer a lesser used and more solitude. Lack of a restroom may result in more sanitation issues at the parking lot to the overlook.



Volunteers enjoy waterfall below the overlook

There is a high likelihood that because of the attractiveness of the features below the overlook and below the Rd 900 area and their proximity to the city, users will continue visit these areas. All dispersed camping at the Rd 900 site would be eliminated and the sites restored. This would restore 3 acres with riparian areas.

Creating trails which end at vista points but do not continue or loop is likely to present management challenges, based on Forest Service Recreation managers experiences on other trails on the District and Forest. Dead end trails such as the Chush Falls Trail, Canyon Creek Trail, and Camp Lake Trail are starting points for user trail development. Even when the end of the trail is signed, people create user trails ever and ever further, often going to places that cause resource damage. Such user created trails are neither designed nor constructed, so are often over-steep and erosive. Recreation managers believe the best way to avoid this management battle is to connect trails to other trails, thus allowing users to follow a managed trail as far as they like and to turn around where ever they please at any point along the trail.



User Trail "Brads Trail" below Rd 900 would be restored

The restoration of user-created trails along Whychus would provide a setting for self-discovery more-so than Alternative 2. Areas that currently have erosion occurring would be more aesthetically pleasing for visitors after restoration and re-contouring. Rough conditions and educational signing may keep many people out of these areas. For those that prefer the solitude and sense of self-discovery, the proposed trails restoration would increase their level of enjoyment.

If many people enter these areas, trails will form again. The continuation of self discovery creating new user trails will recreate the current problem and retard the recovery of vegetation and effectiveness of restoration. Monitoring by Forest Service and volunteers would be more difficult and complex with less system trail system to follow and more user trails to locate, assess, and remove if they cause environmental damage.

Alternatives 2-3 Cumulative Effects

Little vegetation management has occurred in the cumulative effects analysis area in the past 15 years. Foreseeable and ongoing actions in the next 5 years that may change visual quality and affect people's sense of place include: 1) Sisters Area Fuels Reduction Project (SAFR) approved in 2009 and the Popper Vegetation Management Project, currently being planned which would result in short-term scenic effects from cut trees, ground disturbance, smoke, blackened trees and ground for 1-3 years after burning. Long-term scenic quality would improve as open park-like stands and more natural historic stand conditions and wildlife habitat are restored; and 2) Invasive Plant Control on public lands through the Deschutes/Ochoco Invasive Plant program, which should benefit scenic quality by reducing large populations of invasive weeds along roads and waterways and allowing reestablishment of attractive native wildflowers and grasses.

Increased management controls in riparian areas, roads and trails, along with revegetation of unneeded roads with native plants under both Alternatives 2 and 3 would combine with other efforts of streamside and forest restoration in the watershed to cumulatively improve visual quality by creating a more natural appearing landscape and reducing impacts from unmanaged recreation. Continuing community volunteerism and stewardship will improve resource conditions.

With several restoration projects along Whychus Creek and its irrigation canals people who used areas on the creek or canals near the City of Sisters for dispersed camping or day use will be displaced as canals have been piped and roads are closed to protect stream banks. They may be displaced back towards the city, or to nearby campgrounds such as Black Pine Spring or Cold Springs or higher up the creek near the Rd 1514 bridge crossing. This could increase use, crowding, conflict and soil compaction in these areas.

Other Disclosures

Civil Rights and Environmental Justice

See earlier discussion of the consultation and the involvement of Native American Tribes and the sections of the project analysis which discusses how a Wild and Scenic River Plan will better protect prehistoric and traditional use resources important to the Tribes. There have been no issues or concerns raised with adverse effects to Native American Tribes.

There are no known direct, indirect, or cumulative effects on Native Americans, minority groups, women, or civil rights beyond effects disclosed in the Deschutes Land and Resource Management Plan.

Environmental Justice means that, to the extent practical and permitted by law, all populations are provided the opportunity to comment before decisions are made and are allowed to share in the benefits of government programs and activities affecting human health and the environment.

Executive Order 12898 on environmental justice requires federal agencies to identify and address any disproportionately high and adverse human health or environmental effects on minority and low income populations. The action alternatives would have no disproportionately high or adverse effects to minority or disadvantaged groups qualifying under the environmental justice order. Scoping and widely circulated media articles have raised no issues or concerns associated with the principles of environmental justice. The action alternatives do not have a disproportionately high and adverse human health effects, high or adverse environmental effects, substantial environmental hazard or effects to differential patterns of consumption of natural resources. All interested parties will continue to be involved with commenting on the project and the decision making process.

Congressionally Designated Areas

This analysis discusses why action is needed and the effects of the project on congressionally designated areas such as the Whychus Wild and Scenic River. It would not be adversely affected by the proposed activities. No significant irreversible or irretrievable commitment of resources would occur under either action alternative because the purpose of the project is to protect and enhance the values of the area.

Prime Farm and Forest Lands and Wetlands

The Secretary of Agriculture issued Memorandum 1827 which is intended to protect prime farm lands and range lands. The project area does not contain any prime farmlands or rangelands. Prime forestland is not applicable to lands within the National Forest System. National Forest System lands would be managed with consideration of the impacts on private lands. There would be no direct, indirect, or cumulative adverse effects to these resources and thus are in compliance with the Farmland Protection Act and Departmental Regulation 9500-3, "Land Use Policy." Potential effects to wetlands are extensively discussed in the Hydrology Section of this analysis. The analysis concluded there are no negative impacts of the action alternative to wetlands.

Compliance with Other Policies, Plans Jurisdictions

The alternatives are consistent with the goals, objectives and direction contained in the Deschutes National Forest Land and Resource Management Plan and accompanying Final Environmental Impact Statement and Record of Decision dated August 27, 1990 as amended.

Implementation of Alternative 1 (No Action), or Alternative 2 or 3 would be consistent with relevant federal, state and local laws, regulations, and requirements designed for the protection of the environment including the Clean Air and Clean Water Act. Effects meet or exceed state water and air quality standards.

Irretrievable and Irreversible Commitment of Resources

NEPA requires that environmental analysis include identification of "...any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented." Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that the use of these resources have on future generations. No significant irreversible or irretrievable commitment of resources would occur under Alternative 2 (Proposed Action) because none is proposed in this project.

- Irreversible: Those resources that have been lost forever, such as the extinction of a species or the removal of mined ore.
- Irretrievable: Those resources that are lost for a period of time, such as the temporary loss of timber productivity in forested areas that are kept clear for use as a power line rights-of way or road.

Consultation and Coordination

The Forest Service consulted the following individuals, Federal, State, and local agencies, tribes and non-Forest Service persons during the development of this environmental assessment:

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Appendix 1: CONSISTENCY CHECKLIST

Whychus Creek Wild and Scenic River Management Plan, Standards and Guidelines as amended to the Deschutes Land and Resource Management Plan Wildlife Standards and Guides and Biological Objective for Landbirds

Whychus Creek Wild and Scenic River Management Plan Standards and Guidelines

| Standard and Guideline | Do Not Meet, Meets, Not Applicable | Rationale |
|---|---|--|
| HYDROLOGY- Roads in Riparian Areas and Associated Uplands | | |
| <p>WWSR- H-2: Reduce roads in the Whychus Wild and Scenic River Corridor by closing, decommissioning, and/or rehabilitating roads to restore vegetation and infiltration, as informed by the Roads Analysis process.</p> <p>Priorities are:</p> <p>A. Hydrologically connected roads which are channeling water or sediment.</p> <p>B. Roads which affect riparian habitats including Riparian Reserves or Riparian Habitat Conservation Areas.</p> <p>C. Roads which allow access into areas where resource damage is occurring to the Outstanding Remarkable Values associated with riparian areas and Whychus Creek. Consider appropriate management options including increased enforcement, rest, temporary or permanent closures, or full restoration as needed.</p> | Meets | Under both Action Alternatives 4.1 miles of road that connect to or are within the Whychus Wild and Scenic Corridor in the Portal project area would be closed and 4.5 miles would be decommissioned. |
| HYDROLOGY Trails in Riparian Areas and Associated Uplands | | |
| <p>WWSR- H-3: Trails will be designed to avoid sensitive riparian areas to the extent possible while providing access to the creek at designated locations.</p> <p>Considerations for trails in riparian areas:</p> <p>A. Locate trails in upland areas as much as possible and consolidate and remove user trails in riparian areas.</p> | Meets | Under both Action Alternatives, there would be a net reduction in trails. A system trail hiking trail would be created, part of which is within the RHCA, by primarily consolidating and relocating user-created trails. Under Alt. 2, 2.8 miles of new trail and 1.1 miles under Alt. 3 would be mindfully constructed according to the |

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| <p>B. Any trail construction is for the primary purpose of relocating public use to reduce resource damage and retains as much vegetation as possible, fits with the topography, and is consistent with riparian function.</p> <p>C. Trails are defined, hardened, replanted, rested, relocated, or closed where unacceptable impacts to riparian vegetation, stream banks, or water quality occurs. Unacceptable impacts are identified by devegetation beyond normal tread width, loss of bank stability, exposed tree roots, loss of overhanging bank structure, lack of trail definition or multiple parallel trails, or point source erosion and siltation.</p> <p>D. Only foot traffic is allowed on streamside trails except for the allowed bike and horse use on the Metolius Windigo Trail and Three Creeks- Metolius Windigo Connector.</p> | | <p>guidelines in the Whychus Wild and Scenic River Plan. The intent of creating this trail would be to reduce illegal trail building and associated resource damage in the W&S corridor.</p> |
| HYDROLOGY- Dispersed Camping in Riparian Areas and Associated Uplands | | |
| <p>WWSR- H-4: The quantity and location of dispersed camping sites is regulated to protect river resources, particularly riparian vegetation and water quality.</p> <p>Considerations for dispersed camping sites:</p> <p>A. Dispersed camping sites are defined, hardened, replanted, rested, relocated, or closed where unacceptable impacts to riparian vegetation, stream banks, or water quality occurs. Unacceptable impacts are identified by devegetation or increased bare soil exposure created by site expansion or site proliferation, loss of bank stability, exposed tree roots, loss of overhanging bank structure, or point source erosion and siltation.</p> <p>B. Fires are allowed only in existing fire rings.</p> | Meets | <p>Under Alt. 2, 10 of the 15 dispersed campsites in the Portal project area would be decommissioned and 12 sites under Alt. 3. Under Alt. 2, 2 dispersed sites in the RHCA would remain but mitigations would be implemented such as restricting vehicular access, reducing site size, and revegetation, to reduce effects to riparian vegetation and water quality. Under Alt. 3, all dispersed sites in the RHCA would be decommissioned.</p> |
| FISHERIES- Applicable S&G' s covered in Hydrology Standards and Guidelines | | |
| SCENERY MANAGEMENT | | |
| <p>WWSR-S-2 Scenic River Section- Under the Visual Scenery Management System terminology</p> | Meets | <p>Under both Action Alternatives, there would be an improvement in foreground and landscape scenery</p> |

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| the Scenic Integrity Objective (SIO) is “High”. | | with restoration of discordant visual elements |
| CULTURAL RESOURCES | | |
| <p><u>Prehistoric Resources</u></p> <p>WWSR- C-1: Heritage resources are identified, evaluated for eligibility to the National Register of Historic Places, and for appropriate use (research, interp./ed., preserve for future, no protection, etc..) prior to decisions about developments that may affect the resource; and consideration of these evaluations are incorporated into the development being planned.</p> | Meets | Under both Action Alternatives, Cultural Resources are evaluated and protected as specified. |
| <p><u>Traditional Use</u></p> <p>WWSR- C-2: Any proposed actions or discovered disturbance of prehistoric sites, traditional use resources, or potential sacred sites or sites of interest to the Confederated Tribes of the Warm Springs Reservation of Oregon will include notification, discussion, and consultation of tribal officials and relevant tribal committees or specialists prior to decision about implementing actions or dealing with disturbances. This will include notification through the National Environmental Policy Act (NEPA) planning process but will also consider additional contact and discussion with or without a NEPA process taking place.</p> <p><u>Whychus House Cave</u></p> <p>WWSR- C-3: No rock climbing, camping, or campfires shall be allowed at Whychus House Cave.</p> | Meets | Tribes will be notified |
| | Meets | Closure is being implemented |

| WILDLIFE | | |
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| <u>Wildlife Habitat, Trails and Roads</u> | | |
| <p>WWSR-W-1-Maximize undisturbed areas that provide or enhance wildlife refugia and minimize impacts to Riparian Habitat Conservation Areas. Avoid trail development in areas which receive little use and function as refugia.</p> <p>A-If trail development is needed for resource protection limit trails to one side of the river corridor. An exception is on the lower terminus of the river corridor where a consolidation of user trails may be considered across the river corridor from the Three Creeks/ Metolius Windigo Connector, which is on an existing road on the ridge.</p> | Meets | <p>Trail development is in an area of high use and resource damage.</p> <p>Trails are needed for resource protection.</p> <p>Trails proposed for development are in the exception area.</p> |
| WWSR-W-1-B- Road closures shall be prioritized in proximity to trails to maximize effectiveness of wildlife refugia . | Meets | All road closures were designed to reduce user created disturbance/vandalism and reinforce habitat effectiveness near trails. |
| WWSR-W-1-C-Trail development or consolidation within Riparian Habitat Conservation Areas and Riparian Reserves is for the primary purpose of relocating public use to reduce resource damage. | Meets | Primary purpose of trail relocation is to limit disturbance and impact to Riparian Habitat Conservation Areas due the impacts of unmanaged recreation and vandalism. |
| WWSR-W-1-D-Revegetate areas such as closed roads or other excessively large dispersed recreation sites to expedite the development of new habitat. | Meets | The project will reclaim natural vegetation within closed dispersed campsites as well as road closures to restore habitat. |
| WWSR-W-2-Reduce road densities in the Wild and Scenic River corridor by closure, decommissioning, and rehabilitating closed roads to restore vegetation and wildlife habitat. | Meets | A primary objective of the project is to reduce road densities. |
| WWSR-W-3 Considerations in Managing Deer Winter Range and Transition Range | | |
| WWSR-W-3-A Crown cover greater than 40 percent with trees 30 feet tall is recommended for thermal cover. | Not Applicable | This project does not propose to implement any vegetation management activities. |
| WWSR-W-3-B Forage conditions will be maintained or improved with emphasis on increasing the variety of | | This project does not propose to implement any vegetation management activities. |

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| native plants available for forage and a mixture of age classes of shrubs. Variety in areas which are dominated by poor vigor shrubs will be created. Species will be established so that a variety of shrubs, grasses, and forbs are available. | Not Applicable | |
| WWSR-W-3-C Where fuels reduction activities such as mowing or prescribed burning are planned, the size of the treatment units normally will be 300 to 500 acres including unmanipulated islands. If more than one unit is treated in a single year, treatment units should be 600 to 1,200 feet apart. The untreated portion of the area involved can be mowed or burned after the treated areas provide a good quality of forage. | Not Applicable | This project does not propose to implement any vegetation management activities. |
| WWSR-W-3-D If foraging areas are created through forest thinning, units will be designed to be irregularly shaped. Thermal cover will be maintained immediately adjacent to the foraging site. The stands providing cover can be in different age classes. The desired condition is an irregular mosaic of openings intermingled within tree stands. As an opening is reestablished with trees and qualifies as cover, adjacent areas may be thinned to maintain forage-producing areas where forage is deficient. | Not Applicable | This project does not propose to implement any vegetation management activities |
| VEGETATION/ECOLOGY- | | |
| Applicable S&G's covered in Hydrology Standards and Guidelines | | |
| RECREATION | | |
| <u>Recreation Opportunity Spectrum (ROS)</u> WWSR-R-1 The following Recreation Opportunity Spectrum(ROS) classification will guide the characterization of the desired visitor experience as follows: <i>Scenic River- Semi-Primitive Motorized</i> | Meets | Under both Action Alternatives the area would be designed and managed for the ROS category- <i>Semi-Primitive Motorized</i> |

| <u>Roads, Trails and Dispersed Camping in Riparian Areas and Associated Uplands</u> Applicable S&G's covered in Hydrology Standards and Guidelines | | |
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| <u>Mountain Bike and Equestrian Trails</u> WWSR- R-2 New opportunities for mountain bike or equestrian uses to pass through the corridor are provided on closed roads or off -river trails as appropriate. | Meets | Under both Action Alternatives a connector is provided on a closed road and off river trail to pass through the corridor. |
| <u>Bridges</u> WWSR- R-4 Adding new bridges is generally not consistent with the desired primitive or semi-primitive setting and theme of self discovery. Any new bridge construction must meet the criteria that is needed to protect the Outstandingly Remarkable Values. | Meets | The action was analyzed under Alternative 5 (considered but not analyzed in detail). A bridge is not currently needed to protect resource values and could increase use beyond desired levels. |
| <u>Interpretation and Education</u> WWSR-R-11 Interpretation and education are integral in the resource management and community stewardship of the corridor. Interpretive themes stress resource protection, stewardship, low impact recreational practices, and visitor responsibility. WWSR-R-12 Interpretive mediums which are off site or do not require permanent facilities are emphasized. WWSR-R-13 Signs and permanent structures are used primarily in developed sites or where continuous information is important for visitor safety or resource protection. | Meets | Interpretive signing is planned under both Action Alternatives. Signs would be located near facilities: parking areas, trailheads and not at viewpoints. Focus on ORV's Stewardship, low impact behaviors. |
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Additional Wildlife Standards from The Deschutes Land and Resource Management Plan.

Wildlife standards and guidelines for Northern Goshawk (WL-6, WL-10, and WL-11) will be assessed. The project is consistent with the Deschutes LRMP.

| Standard and Guideline | Do Not Meet, Meets, Not Applicable | Rationale |
|--|---|--|
| WL-6 – Nesting habitat for at least 40 goshawk pairs will be provided in mixed conifer, mtn. hemlock, and ponderosa pine forests outside wilderness. | Meets | Habitat is available across the Forest. |
| WL-10 – Locating new roads within nest site stands will be avoided. | Not Applicable | No new road construction is proposed for this project. |
| WL-11 – Nests will be protected within ¼ mile from disturbing activities. | Meets | Mitigation measures are in place for seasonal restriction around known nest sites and in the event a new nest site is found. |

Wildlife standards and guidelines for Coopers' and Sharp-shinned Hawks (WL-13, WL-18, WL-19, WL-21, WL-27 and WL-28) will be assessed. The project is consistent with the Deschutes LRMP.

| Standard and Guideline | Do Not Meet, Meets, Not Applicable | Rationale |
|--|---|---|
| WL-13/21 – Nesting habitat for at least 60 pairs of Coopers hawks and 60 pairs of sharp-shinned hawks will be provided in mixed conifer and ponderosa pine forests outside wilderness. | Meets | Habitat is available across the Forest. |
| WL-18/27 – Locating new roads within nest site stands will be avoided. | Not Applicable | No new road construction is proposed for this project. |
| WL-19/28 – Nests will be protected within ¼ mile from disturbing activities. | Meets | Mitigation measures are in place for seasonal restrictions around known nest sites and in the event a new nest site is found. |

Wildlife standard and guidelines for Red-tailed Hawk (WL-2 and WL-3) will be assessed. The project is consistent with the Deschutes LRMP.

| Standard and Guideline | Do Not Meet, Meets, Not Applicable | Rationale |
|---|---|--|
| WL-2 – Maintain forested character at least 300 feet surrounding active nest sites. | Meets | There are no known nests within the project area. If a nest is located, measures will be incorporated to meet this standard. |
| WL-2 – While timber management may occur, maintain at least 4 dominant overstory trees per acre suitable for nest and perch trees, favoring ponderosa pine. | Not Applicable | No Key Elk Habitat Area in project area. |
| WL-3 – Seasonal restrictions will be in effect for disturbing activities within ¼ mile of active nests. | Meets | Mitigation measures are in place in the event a nest site is found. |

Wildlife standard and guidelines elk and deer (WL-43- 50, and 53) will be assessed. The project is consistent with the Deschutes LRMP.

| Standard and Guideline | Do Not Meet, Meets, Not Applicable | Rationale |
|--|---|---|
| ELK | | |
| WL-43 –Within key elk areas, provide conditions needed to support at least 1500 summering elk and 240 wintering elk. | Not Applicable | No Key Elk Habitat Area in project area. |
| WL-44 – Incorporate elk calving needs in the management of riparian reserves to the extent they do not conflict with the objectives of riparian management. | Not Applicable | No Key Elk Habitat Area in project area.. |
| WL-45 – Facilities will not be developed nor activities promoted which encourage public use during the winter. Motorized traffic will be limited to designated routes. | Not Applicable | No Key Elk Habitat Area in project area. |
| WL-46 – Open road densities for | | No Key Elk Habitat Area in |

| | | |
|---|----------------|---|
| the key elk area should not exceed an overall average of 0.5 to 1.5 miles per square mile. | Not Applicable | project area. |
| WL-47 – Hiding areas must be present over at least 30% of National Forest land in each key elk area. | Not Applicable | No Key Elk Habitat Area in project area. |
| WL-48 – Travel corridors may be provided by linking stands (to assist in meeting hiding cover needs). | Not Applicable | No Key Elk Habitat Area in project area. |
| WL-49 – Hiding areas will be dispersed throughout the key elk area. | Not Applicable | No Key Elk Habitat Area in project area. |
| WL-50 – Thermal cover must be present over at least 20% of National Forest land in each key elk area. | Not Applicable | No Key Elk Habitat Area in project area. |
| DEER | | |
| WL-53 – Target open road densities are 1.0 to 2.5 miles per square mile to achieve deer summer range habitat effectiveness targets. | Moving Towards | Resulting open road densities are still above the recommended densities. However, this project will help in reducing densities to help meet the target of 1.0 to 2.5 miles per square mile. |

Landbird Strategy

Biological objectives for *pygmy nuthatch* habitat in open understory ponderosa pine with large trees will be assessed. The project meets objectives outlined in the Conservation Strategy for Landbirds on the East-Slope of the Cascade Mountains in Oregon and Washington.

| Objective | Do Not Meet, Meets, Not Applicable | Rationale |
|---|---|--|
| Where ecologically appropriate initiate actions in ponderosa pine forests to maintain or provide: mean of >10 trees/ac >21" dbh and at least 2 of the trees >31" dbh (foraging trees and replacement snags) | Not applicable | Project does not propose any vegetation management activities. |
| Where ecologically appropriate... maintain or provide: mean 1.4 snags/ac >8" dbh with 50% >25" dbh in a | Not applicable | Project does not propose any vegetation management activities. |

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| moderate to advanced state of decay | | |
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Biological objectives for *chipping sparrow* habitat in open understory ponderosa pine with regenerating pines will be assessed. The project meets objectives outlined in the Conservation Strategy for Landbirds on the East-Slope of the Cascade Mountains in Oregon and Washington.

| Objective | Do Not Meet, Meets, Not Applicable | Rationale |
|---|---|--|
| Where ecologically appropriate initiate action in ponderosa pine forests to maintain or provide: interspersed of herbaceous ground cover with shrub and regenerating pine patches | Not applicable | Project does not propose any vegetation management activities. |
| Where ecologically appropriate... maintain or provide: 20-60% cover in the shrub layer | Not applicable | Project does not propose any vegetation management activities. |
| Where ecologically appropriate... maintain or provide: >20% of shrub layer in regenerating sapling conifers especially pines | Not applicable | Project does not propose any vegetation management activities. |
| Where ecologically appropriate... maintain or provide: 10-30% mean canopy cover | Not applicable | Project does not propose any vegetation management activities. |
| Where ecologically appropriate at the landscape level maintain or provide: a mix of understory conditions such that 10-30% of the landscape meets site-level conditions mentioned above | Not applicable | Project does not propose any vegetation management activities. |